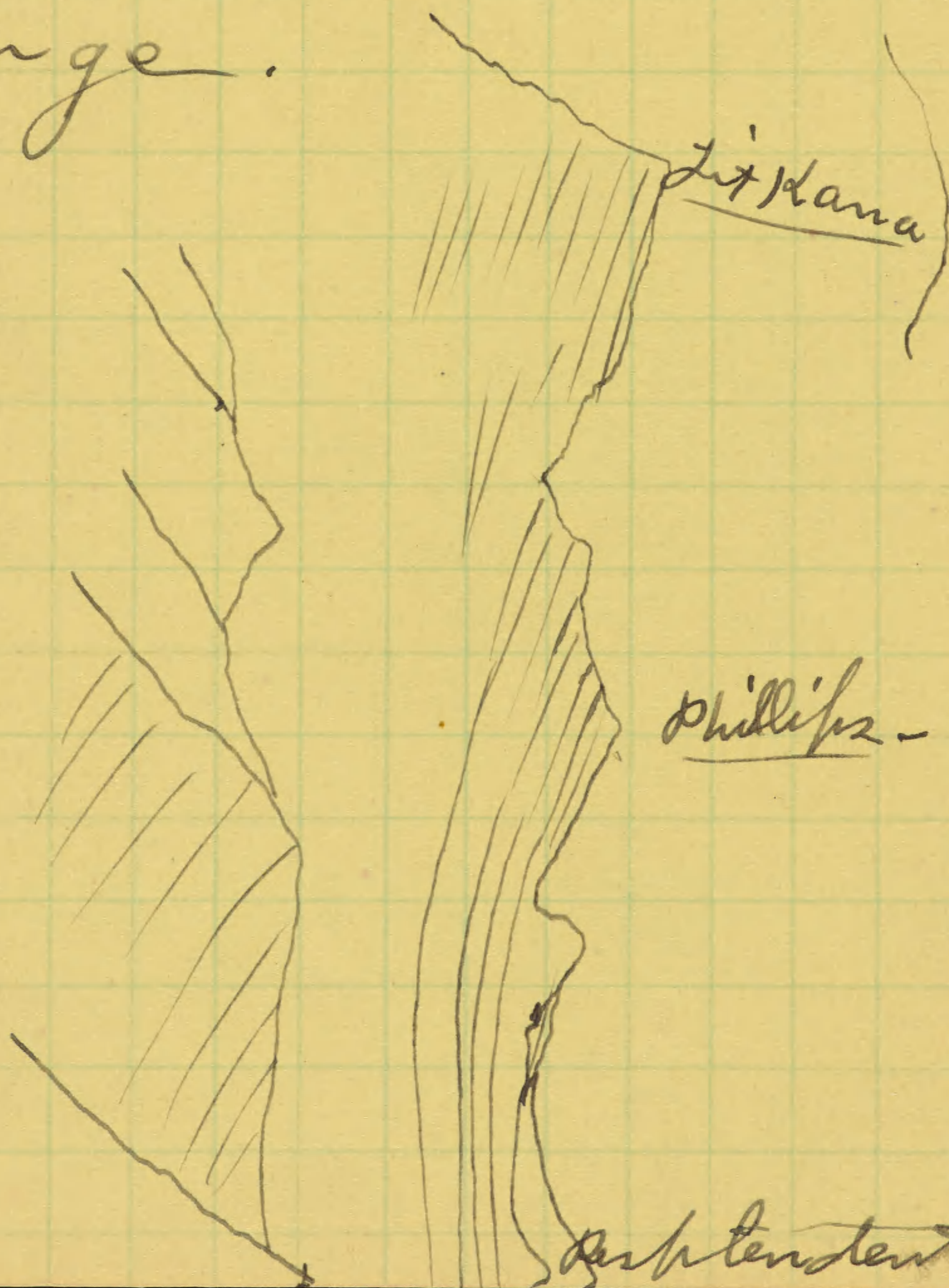


July 19/13.

a beautiful day.

Taking photos with Sidney  
+ Stuart - from slope  
of Mumm - Peak.

Panoramic views from  
Mahto Mt. to Robson +  
across the Minichan  
range.





R07004

Box 30

F. 3

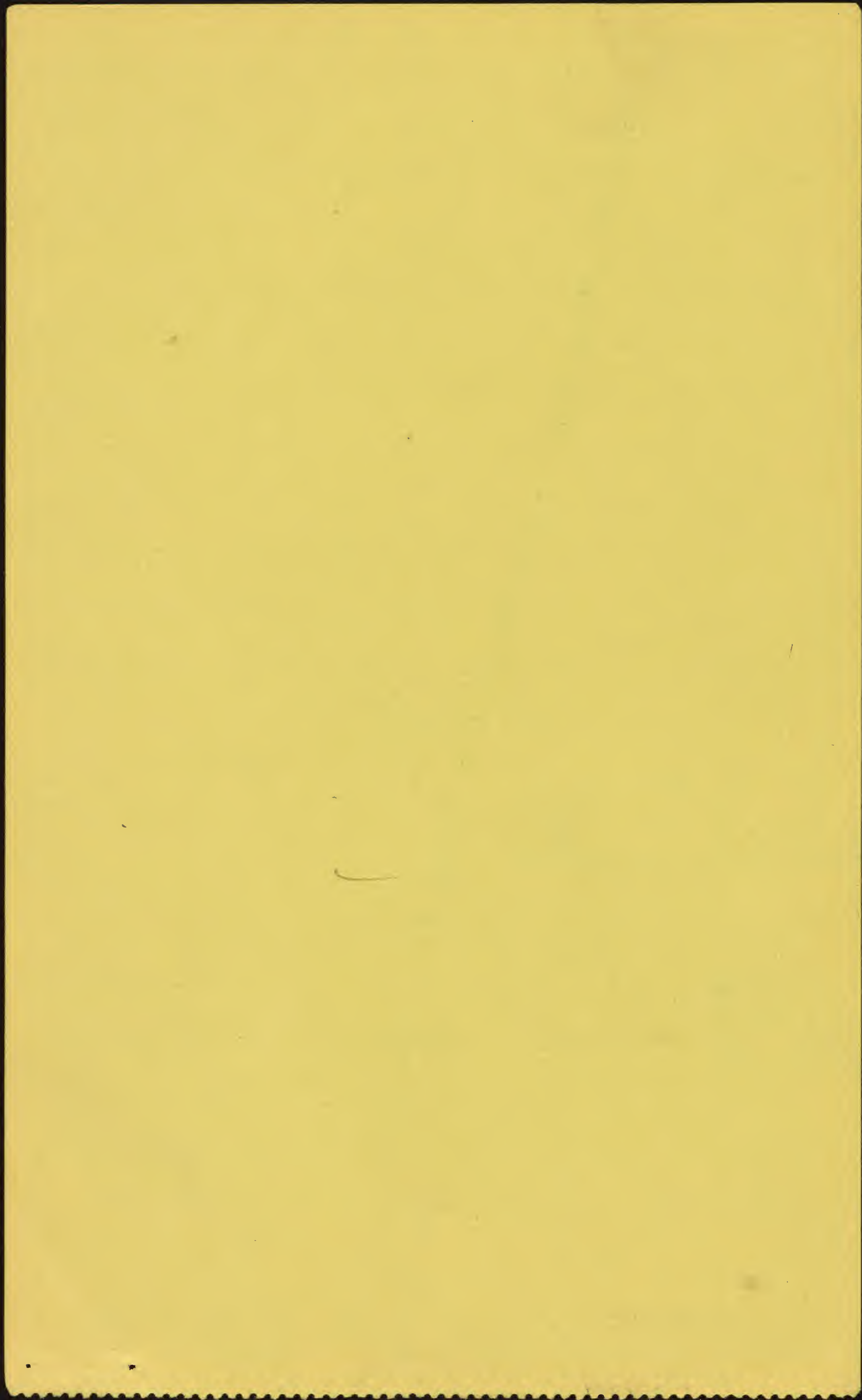


5.9) Ranger Canyon Section.

The section was measured near the head of the northeast branch of Ranger brook canyon ~~of the Sawback~~ Range ten miles (16 Km) north-northwest in an air line from Banff Alberta.

Ranger brook heads high up in the ~~Sawback~~ range near the divide separating it and the branches of Fourty mile creek which is on the <sup>northeast</sup> ~~opposite~~ side of the range. Its canyon is between Mt. Sawback on the north and Mt. Allan on the south. and the brook passing out of the southernmost fork of the range flows past the massive park and game







2

warden lodge ~~situated~~  
on the Barff - ~~Lake house~~  
Windermere motor road

The contact between  
the dark Devonian lime-  
stones carrying Stromato-  
pora and numerous  
corals with the light  
gray limestones of the  
Upper Cambrian Mous  
formation is finely shown  
in the cliffs at the  
northeast head of the  
canyon also along its  
northwest side and  
southeast rim where  
the canyon bends to the  
southwest and cuts  
through the Devonian  
and superjacent Carbon-  
iferous limestones.

The relations of the  
Devonian and pre-Devonian  
strata are mentioned under







3

the heading Ghost River  
formation & interval.  
(p. 300) (ante p. 100)  
Section.

Heermann

~~the~~ Disconformity.

Upper Cambrian.

lower formation.

1a



+ <sup>2</sup>suprafacial cleavage  
faint cleavage.

~~Section going down  
beneath the Devonian,  
Upper Cambrian  
and lower formation.~~

<sup>1a</sup> Lead gray compact  
limb in layers 2<sup>nd</sup> to 10<sup>th</sup>  
thick with cherty  
+ magnesian stringers &  
irregular partings.  
Dip 60° to 70° S. W. (magnetic)  
~~a compact~~ layers of dark gray, buff  
weathering, magnesian lim  
3<sup>rd</sup> to 8<sup>th</sup> thick are intercalated  
at irregular distances from  
each other below 48 ft  
~~down to~~ from the top.

an 120 feet layer  
with many small  
irregular concretions  
occur with minute




a)

From about 30 ft ( m )  
down to 80 ft - ( m )  
~~great quantities~~  
annelled trails <sup>nearly</sup> cover  
the rock, & some layers  
have ~~annelled~~ borings  
running through them  
in all directions. The  
borings being filled in  
with a hard magnesian  
lm - That causes them  
to weather out on  
the surface in a most  
effective manner.



fragments of an Abolus  
like shell & bits of  
trilobite test  
at 192 the Ophileta  
fauna occurs -

Syn trophia -  Same as  
at Glacier  
Lake -

Crepicephalus  
(same space  
of 2 inches)

The same fauna occurs  
at Glacier  
Lake & at head of  
Clearwater river -  
in both ~~x~~

Total of 1a

240. <sup>feet</sup>

1b Thick bedded rough  
weathering gray limestone  
interbedded in shaly  
limestone & shale.  
At 354<sup>feet</sup> thin  
bluish gray shaly  
limestone / appears



\*) at 215, noted a  
small Orthoceras six  
inches (cm) long  $5/8$ "  
(cm) in diameter on  
surface of large block  
of rock - It had a  
simple small pithmark  
& was ~~very~~ badly injured  
by weathering.



in bands, - between  
the thicker layers -

At 476 ft (m) <sup>1</sup> above  
a trilobite fauna  
occurs in which  
Tsinaria? is abundant.  
66' (leave 2 in space)

The same character of  
bluish gray & gray  
compact hard thin  
containing dynam  
to base of 1<sup>st</sup>

750 ft  
1<sup>st</sup>  
Massive bedded  
gray breaking down  
into thin shaly  
layers  
190 ft

Over on back.



about

a) From 10 to 15 feet  
from the base two  
thick layers, occur  
carrying Cryptozoa  
sp. ? - on their  
upper surface; they  
vary from 6" (cm)  
to 14" (cm) in  
diameter & can  
only be ~~obtained~~  
collected by blasting  
the very solid compact  
limestone.



Mons. formation

1d. Thin layers of  
compact, hard gray  
lm. with shaly thin  
interbedded calcareous shale  
in thin bands - 120ft.

66K / Tanna - (Leave space of 2m)  
Tsingania

1E Thick bedded gray  
oolitic lm. with  
coarse botryoidal  
structure in lower  
layer - This belt  
& the thin layers  
just above weather  
rusty brown & orange  
reddish brown  
clones.

magnetic  
70°  
30°  
N. 30° W.

Tanna - East Ther  
Tanna  
Tanna

(56)

Tanna  
(2nd space)



$$\begin{array}{r} 63 \\ 6 \\ \hline 37,800 \end{array}$$

$$\begin{array}{r} 158 \\ 6 \\ \hline 948 \end{array}$$

$$\begin{array}{r} 378 \\ \hline 1326 \end{array}$$

$$\begin{array}{r} 90 \\ 120 \\ 1325 \\ 145 \\ 165 \\ 44 \\ 42 \\ 300 \end{array}$$

$$\begin{array}{r} 2230 \end{array}$$



6

a few ~~shaly~~ bands  
of shale occur as  
partings between  
the bands of limestone.

90 ft

66 ft / Fauna in lim -  
Eoorthia 2 in space  
Isinaria  
Sanytia  
Total mass 1390

44 ft / formation  
1 @ gray arenaceous  
+ micaceous lim  
in thin & massive  
layers.  
at 1378 ft (m)  
down - a band of  
dark lead colored  
rough weathering  
mass - lim occurs  
3.5 ft thick & 4.0 ft (m)  
below a thicker  
band of 45 ft (m);



4

15

6

Positive 60th

29

10/

12/

13/



7<sup>th</sup> The gray  
light weathering limestone  
then continues down  
with alternating  
bands of darker  
mag - 0.1m -  
Total of 7 - 1325.

2<sup>a</sup>

Gray oolitic limestone layers  
3<sup>rd</sup> (1m) to 1.8m (1.5m)  
Thick - with partings  
of calcareous + magne  
shale +  
dip 70° S. 30° W magnetic  
St. N. 60° W - magnetic 145°

Fanna (66<sup>4</sup>)

66<sup>4</sup> Agostus (3m space)  
P.H. -

2<sup>b</sup> Dark bluish-gray  
compact limestone in  
layers varying from one  
to 10m thick (1m) with







The upper 20 ft (gray m)  
has considerable, mag-  
netic buff weathering  
limestone in the  
No fossils seen  
except annelid trails - 165.

3<sup>a</sup> greenish very fine  
argillaceous shale 9 ft

3<sup>b</sup> Steel gray - hard  
lm in bands that  
break down on  
weathering into shaly  
+ thin layers that

weathering light gray  
+ buff 44 ft

(4a ~~lm~~ back)  
shaly arenaceous

~~beds of gray + purple  
Alternating layers  
richly marked with  
work of  
sun dried cracks  
filled in with fine  
sand + silt - a few  
fine annelid trails~~



4<sup>a</sup> Alternating bands  
of ~~shaly~~ of purple  
or gray arenaceous  
shale & thin layers  
of purplish red sand-  
stone the surfaces of  
which are usually  
rippled marked and  
checked by run  
cracks, that were  
filled in by <sup>fine</sup> sand &  
silt. a few small  
annelid trails occur  
on the shaly sandstone  
but no other traces  
of life were observed

42 feet.



The ripple marks, sun & wind dried cracked surface all indicate a shallow sea, the bottom of which was exposed between tides.

Total Lyell formation 1680 ft

Sullivan formation.

1/a

Thin bedded, steel gray magnesian limestone weathering drab gray. No traces of life in or on the layers seen.

Estimated 300 ft

1/b

Massive bedded rough weathering magnesian limestone



forming the crest  
 of the range and  
 greatly disturbed  
 & broken up. Somewhere  
 in this broken & distorted  
 limestone there is a band  
 of thin bedded limestone  
 in which fossils of the  
 Sullivan formation occur  
 as fragments were found  
 in the debris washed  
 down from the high  
~~cliffs~~ ragged cliffs.  
 These included.

(4 in space)



the contact<sup>2</sup> is best seen  
in a steep narrow  
ravine that extends from  
the notch on top of the  
ridge 1500 feet (m)  
or more down the  
north slope of the ridge.  
Both the Devonian and  
Ogankian limestones  
are nearly vertical on  
the bedding of the  
line of contact ~~at a~~  
at a point  
about three miles (km)  
above the mouth  
of Ranger Canyon &  
a mile south of the  
section of 1921.  
The upper "Aphileta"  
fauna of the main  
occurs about 30 feet  
(m) below the  
contact - No  
traces of the Sanbach







formation<sup>3</sup> were seen  
top the sequence on  
on the north side  
of Ranger Canyon  
brook where there  
is an outcrop of  
the Meromian & the  
subadjacent (mons) Ogar-  
kian limestone.

---

Look for Sanbagh  
near head of Johnson  
Creek.



Aug. 19, 1907

F. 3

Box 30

Ru 7004



Aug. 19/07

Camb - Section (B1)

Castle Mt. - B.C.

2/1 Gray, quartzitic sd.  
in layers 1 to 9 ft thick.  
Weathering rough on  
surface.

35

Fossils. Fragments of  
Olenellus.

2/2 Drab argillaceous &  
arenaceous shale with  
thin layers of hard  
sandstone. At 46 ft.  
a few bands of purple  
colored shale appear  
& at 57 ft the shale  
gives way to thin bedded  
shaly gray & brownish  
sds.

57.

Fossils

Many fragments of Olenellus  
in the interbedded sds.



20.

4

4. 5  
12 3

17  
9  
3  
29.



layers in the lower  
 20 feet of the shale.

3)

gray & dirty brown thin  
 bedded sd. with coarse  
 annular trail & mud  
 marking on surface of  
 many layers.

at 19 feet from the  
 bottom a calcareous  
 layer 3 in thick appears  
 & two similar layers  
 at 19 ft.

2)

18/

4. The sandy-shaly  
 beds give way to  
 arenaceous shaly lime-  
 stone with thick  
 oolitic limestone layer  
 interbedded.

6

17/

5. Repetition of 3.

22

Dania. facanthoides

Ptychopora

agranulos

(Similar to  
 Bosworth m.  
 forms)



$$\begin{array}{r} 136 \\ \hline 11. \end{array}$$

$$\begin{array}{r} 85. \\ \hline 96 \end{array}$$

$$\begin{array}{r} 30 \\ \hline \end{array}$$

$$14$$

$$44.$$

$$\begin{array}{r} 220. \\ \hline 30 \end{array}$$

$$17,$$

$$\hline$$

$$35.$$

$$245$$

$$\begin{array}{r} 46 \\ \hline 41 \end{array}$$



12/6. Bluish gray thin bedded ~~lm~~, with corallitic layers 1 to 8 in thick.

Fauna.

96

many fragments of trilobites

15/7. Bluish black bedded ~~lm~~.

40

Fauna -

— *Ptychoporia* (2 sp.)  
*Gacanthodes*.

14/8

Gray massive bedded sandstone passing ~~out~~ gradually with the first 50 feet of its base into an arenaceous dolomite that is nearly everywhere marked by large, <sup>irregular</sup> ~~regular~~ <sup>amellid</sup> borings.

260.

17/9

Thin bedded bluish grey,



$$\begin{array}{r} 365. \\ 73. \\ 2 \\ \hline \end{array}$$

$$\begin{array}{r} 146 \\ 219 \\ \hline \end{array}$$

$$\begin{array}{r} 365 \\ \hline \end{array}$$

10

29  
5

$$\begin{array}{r} 145 \\ 20 \\ \hline \end{array}$$

$$\begin{array}{r} 165 \\ \hline \end{array}$$

219.

15

46.

5

$$\begin{array}{r} 230 \\ \hline \end{array}$$

$$\begin{array}{r} 365 \\ 138 \\ \hline 227 \end{array}$$

365

213.

132

176

57

233

34

17

51

5

255

35

290

165

455

43

21

64

5

320

43

363

13

23

sh. 5.



arenaceous lm - most of  
 which is similar to the lm  
 of <sup>8</sup> x x a

272

(Fossils.) Near the base

Zacanthoides - head -

Ptychoparia (minute heads)

At 260 feet a shelf of  
 about 12 feet usually  
 occurs on the cliff  
 profile.

~~272~~

Aug 20<sup>th</sup>

10. Massive bedded silici-  
 nous lm. similar to 8.

At 165 feet up a bed  
 of bluish gray lm in thin  
 layers occurs for 10-12 ft.

455

11. Thin bedded bluish-  
 black & bluish-gray  
 lm, a few oolitic  
 layers.

138

Fossils

Dorypyge - etc

~~138~~



B. 5

$$\begin{array}{r}
 13 \\
 18 \\
 \hline
 31 \\
 5 \\
 \hline
 155 \\
 21 \\
 \hline
 176
 \end{array}$$

$$\begin{array}{r}
 365 \\
 176 \\
 \hline
 189. \\
 2\frac{1}{5} \\
 \hline
 105 \\
 14 \\
 \hline
 120.
 \end{array}$$

$$\begin{array}{r}
 119 \\
 57 \\
 \hline
 176. \\
 57 \\
 \hline
 365 \\
 333 \\
 \hline
 132.
 \end{array}$$

$$\begin{array}{r}
 227. \\
 57 \\
 \hline
 170 \\
 15 \\
 \hline
 46. \\
 5 \\
 \hline
 230 \\
 30 \\
 \hline
 260.
 \end{array}$$



10/12) Calcareous & arenaceous  
shale. Gray weathering  
buff & yellow -

~~170~~  
170

13) Fauna - 17 -

Drab & greenish  
argillaceous shale, 37  
Fauna, Lingulella 14 -

14) Gray, buff weather  
compact lm - 1.

Aug. 21<sup>st</sup>

13) massive bedded, cliff  
forming, dark & light gray  
arenaceous lm, dark  
for the first 200<sup>to 250</sup> feet  
from the bottom.

The massive layers break  
up into thin layers  
on the talus slopes.

260.

14) Massive bedded, light  
fine grained  
medium grained, arenaceous



$$\begin{array}{r}
 14 \overline{) 95} \text{ thin bedded} \\
 \underline{125} \\
 63 \\
 \underline{188} \\
 940 \\
 \underline{125} \\
 1065
 \end{array}$$

$$\begin{array}{r}
 69 \\
 \underline{475} \\
 540
 \end{array}$$

Bar. at foot of  
 15 (7625)

35.

56



1065.

limestone

13

(This ~~limestone~~ forms the upper cliff of the east end of Castle Mountain.)

The ~~limestone~~ is then bedded for a short distance between 540 + 575 feet.

This is the great cliff & mountain forming ~~limestone~~ of this region.

Fama - numerous animal trails.

The ~~limestone~~ weather weathers more like a compact, granular sandstone than a limestone.

(at work

15) Steel gray - light weathering greenish ~~limestone~~ - in thin layers

455

b. B. bluish-black & gray - fossiliferous ~~limestone~~

Aug. 22<sup>nd</sup> 07



$$\begin{array}{r} 45 \\ 5 \\ \hline 230 \\ 30 \\ \hline \end{array}$$

$$\begin{array}{r} 15 \\ \hline 5 \\ 35 \\ 3 \\ \hline 12 \\ \hline 60 \end{array}$$

$$\begin{array}{r} 9 \\ 28 \\ 5 \\ \hline 170 \\ 18 \\ \hline 158 \end{array}$$

$$\begin{array}{r} 55 \\ 260 \\ 60 \\ \hline 375 \\ \hline 158 \\ \hline 533 \end{array}$$

$$\begin{array}{r} 11.19 \\ 5 \\ \hline 55 \end{array}$$

$$\begin{array}{r} 18 \\ 47 \\ 5 \\ \hline 235 \\ 30 \\ \hline \end{array}$$



becoming arenaceous  
toward the top — 260.

Fauna:

Numerous small  
trails — ptychoporia  
2 or 3 species —

16). Thin bedded — 2" — 6"  
gray siliceous lm (47) 265  
Fauna — Large & small  
annelid trails.

17.

17). Thin bedded, compact  
drab colored lm. 60 ft.

18). Shale — Arenaceous &  
calcareous — Purple &  
gray weathering buff.  
intercalated layers 158

19). Siliceous fine grained,  
thin bedded, buff  
weathering limestone. 63



19

596,

40.

$$\begin{array}{r} 18 \\ 47 \quad - \quad 55 \\ \hline 235 \\ 20 \\ \hline 265. \end{array}$$

Bar at top of 20<sup>b</sup>

$$\begin{array}{r} 596, \\ 265 \\ 95 \\ \hline 956, \end{array}$$

---

$$\begin{array}{r} 8750 \\ \hline 6625 \\ \hline 2125 \end{array}$$




20) Arenaceous, purple colored shale with interbedded, gray-shaly lm - <sup>thin</sup> layers. The base of the purple shale occurs at ~~the~~ <sup>the</sup> ~~summit~~, 265

21) Compact, gray to drab. sil. - lm, in layers  $1\frac{1}{4}$  in to 6 in thick with bands of dark, ~~fine~~ arenaceous shale. 45

10) Gray & bluish black limestone with many small concretions. 50.

Fossils

Taleroptera? 

Annulid trails -

1) ~~The~~ <sup>the</sup> ~~base~~ <sup>summit</sup> of the section of Cost ~~ld~~ <sup>ld</sup> ~~Int.~~



## Castle Mt. Section

20.	Lm	95
20	Shale	265
19	Lm	63
18	Ar + cal sh	158
17	Drab - Lm	60
16	Sil - Lm	265
15	Ar + thin bedded Lm	305
14	Siliceous Lm	1065
13	Gray Lm	260
12	Shale + Lm	228
11	Lm	138
10	Sil Lm	455
9	Lm	272
8	Arenaceous Lm	260
7	Lm	40
6	"	96
5	Sd	22
4	Lm	6
3	Sd	27
2	Shale	57
1	Gtz sd -	55+
		<hr/> 4192.



Aug. 12, 1907

F3

Box 30

R07004



Aug. 12<sup>th</sup> 07. <sup>3</sup> Sec. A.  
Castle Mountain South of  
McCannell.

1. Interbedded layers of gray  
fossiliferous limestone and  
greenish gray siliceous  
shale.

20.

Fauna.

*Protypus senectus?* *Abiculus*  
*Ptychopora*.

2. Siliceous shale with a  
few interbedded thin layers  
of compact gray sandstone.

115

No 2 is cleaved at about  
45° to the bedding planes.

For fauna see Mr. Stephen  
section.

3.

Gray & brownish sandstone  
in thin massive layers.

Fauna

Unrecognizable but *Strophobites*

31.



4) massive beds of alternating,  
 irregular <sup>thin</sup> layers of gray lime-  
 stone and gray sandstone.  
 Oolitic layers of limestone  
 occur at several horizons.

### Fauna.

Four feet above base in  
 { oolitic layer 3" thick.  
 { *Ptychopora* 12 sp.  
 { *Scenella* -

4<sup>a</sup> ~~Massive~~ <sup>made up of</sup> layers of banded  
 bluish gray limestone & gray  
 sandstone in layers 1/2 to 2" thick  
 60

Fauna *ptychopora*

4<sup>b</sup> Oolitic limestone in layer  
 3" to 6" thick 44.

Fauna.

4<sup>c</sup> Thin bedded bluish gray  
 slightly arenaceous lim.  
*Amelia* <sup>trails</sup> 120



WNB 355 North

(Sec. A.)

120

5<sup>a</sup>

massive & thin bedded  
arenaceous, steel gray -  
to weathering light gray  
lm.

270' ✓

5<sup>b</sup>

thin bedded, lead gray  
to bluish gray - thin  
bedded, arenaceous lm.

25' ✓

15a

6c - similar to 5<sup>a</sup> ~~40' -~~

83' ✓

15c

5<sup>d</sup> - 5<sup>e</sup> " 5<sup>b</sup> 31 - 83.

126' ✓

15h

5<sup>e</sup> - 5<sup>f</sup> " " 5<sup>a</sup>

682' ✓

55a

5<sup>f</sup> " " 5<sup>b</sup>

404' ✓

Total of 5 = 1595

6. Thin bedded & shaly  
bluish gray lm. - ~~with~~  
Lana

257' ✓

Bathyporus  
Lherminieria.



$$\begin{array}{r} 47 \\ \hline \end{array}$$

$$\begin{array}{r} 54 \\ 270 \\ 27 \\ \hline \end{array}$$

$$\begin{array}{r} 235 \\ 23 \\ \hline 258, \\ 22 \\ \hline 270, \end{array}$$



Sec. A.

7<sup>a</sup> Siliceous & amma-  
ous <sup>greenish</sup> shale with an  
occasional band of  
thin bedded compact  
bluish gray lim 258

7<sup>b</sup> massive bedded bluish  
gray lim, breaking  
down into thin layers  
on cliff slopes. 22

7<sup>c</sup> greenish siliceous  
shale 23



# Castle Mt. Section.

21.	Lm - (Top of section)		95+
20.	Purple & gray arg. shales		265
19	gray, buff weathering lm		63
18	Ar & cal., sh		158
17	Unab - lm		60
16	Sil - lm -		265
15	Ar - lm - thin bedded + bluish - black lm		345
14	massive ar lm + 95		1065
13	Ar. lm	Castle	260
12	Cal & ar sh - + arg. sh -		(228)
11	Thin bedded lm	Stet	138
10	massive ar - lm		455
9	Ar - lm (thin bedded)		272
8	Ar - lm -		260
7	Bluish - black lm		40
6	Thin bedded lm		96
5	Sd - (Cacanthoides)		22
4	Shaly & argill. lm		6
3	Thin bedded sd.		27
2	Sdy sh -		57
1.	Qtz. sd. (Obolus)		55+
	<u>St-Pierre</u>		<u>4132+</u>

Boswell

Cathedral

St-Pierre

267

248



Aug. 1907

F. 3

Box 30

RU 7004



4

# Castle Mountain Section

August 1907  
COW & L.D.B.

Castle Mountain is situated in western Alberta on the line of the Canadian Pacific Railway and faces Bow River Valley. It presents a massive front to the southwest, the higher points appearing like the ruins of a great castle, the highest part of which has an elevation of 9000 feet.

The measured section began at the Southwest base and was carried around the point of the mountain into the large amphitheater on the northeast side, and thence northwest to the point at the head of the am-



(Stewart Knob)

amphitheater (9300). The ridge northeast of the amphitheater rises at its highest point to 9380

The strata of Castle Mountain proper dip slightly to the N.W. and those of the ridge opposite to the W.N.W. forming a shallow syncline at the head of the amphitheater. This structure gives very fine exposures of the strata from the quartzitic sandstones of the Bow River Group to the summit of the series.

Middle Cambrian  
Bosworth formation.



~~Section~~

- 1a (21b) Gray and bluish  
black limestone with  
interbedded siliceous  
layers and numerous  
small concretions

50'

Fauna:

Solenopleura?

Ptychoparia?

annelid trails.

- 1b (21a) Compact gray to  
drab siliceous lime-  
stone in layers  $\frac{1}{4}$ "  
to 6" in thickness with  
interbedded bands of  
dark arenaceous shale

45'

- 2 (20) arenaceous purple  
colored shale with  
interbedded gray shaly  
limestone in thin layers

265'

The highest of the



4

purple layers occur  
near the summit.

- 3 (19) siliceous fine grained  
thin bedded buff wea-  
thering limestone 63
- 4 (18) arenaceous and calca-  
reous shale, purple and  
gray colored with thin  
intercalated buff weather-  
ing calcareous layers 158
- 5 (17) Thin bedded compact  
drab colored limestone 60
- Castle formation.
- 6 (16) Thin bedded (2-6") gray  
siliceous limestone 265

Fauna:

Numerous large and  
small <sup>ammonite</sup> ~~ammonite~~ trails  
and borings.



- 7a (15b) Bluish black and  
gray fossiliferous  
limestone becoming  
more or less arena-  
ceous toward the top 260

Fauna:

Ptychoparia 2-3 sp  
Annelid trails  
annelid

- 7b (15a) Still gray weather-  
ing light gray arena-  
ceous limestone in  
thin layers 55

- 8 (14) massive bedded light  
gray finely granular  
arenaceous limestone  
which weathers more  
like a compact gran-  
ular sandstone than  
a limestone. This  
limestone is usually



very massive, but  
between 540 and 575  
feet above the base  
it is thin bedded

1065

This is the great  
cliff forming lime-  
stone of the mountains  
and ranges in this re-  
gion, it forms the upper  
cliff of Castle Mountain.

Fauna:

Numerous anelid trails  
and borings occur at  
various horizons.

- 9 (13) Massive bedded cliff  
forming dark and light  
gray arenaceous lime-  
stone, the massive layers  
breaking up into thin  
layers on broken cliffs







and talus slopes. The dark colored band forms the lower 200-250 feet, the line of demarcation between the dark band and the lighter gray being irregular.

260

Stephan formation.

10a (12c) Gray buff weathering compact limestone

1

10b (12b) Drab and greenish argillaceous shale

57

Fauna:

10c (12a)

Ptychoparia  
Lingulella  
Hyolithes

Calcareous and arenaceous gray weathering buff and yellow shale

170

Fauna:

Ptychoparia  
Lingulella.



- 11 (11) Thin bedded bluish  
black and bluish gray  
fossiliferous limestone  
with a few interbedded  
oolitic layers 6-12"  
thick

138

Fauna:

Dorypyge  
Olenoides  
Phycoparia  
Bathyuriscus  
Hyolithes

Cathedral formation.

- 12 (10) Massive bedded gray  
arenaceous limestone  
with dark irregular  
anclis borings in  
many of the layers.

At 165 feet from the  
base a band of bluish  
gray limestone occurs  
in thin layers for a  
thickness of 10-12 feet.

455



- 13 (9) Thin bedded bluish gray limestone most of which is similar to the limestone of 12 near the base bluish black fossiliferous layers occur

272

Fauna:

Zacanthoides  
Ptychoparia  
minute heads

- 14 (8) Gray arenaceous limestone that in nearly every bed is marked by large irregular dark anellid borings. About 75' from the base the limestone becomes a gray quartzitic sandstone

760



# White formation.

- 15 (7) Bluish black thin bedded limestone 40

## Fauna:

Zacanthoides

Ptychoparia 2 sp

- 16 (6) Bluish gray thin bedded limestone with oolitic layers 1-8" Thick 96

## Fauna:

many indeterminate fragments of trilobites

- 17 (5) Gray and dirty brown thin bedded sandstone 22

## Fauna:

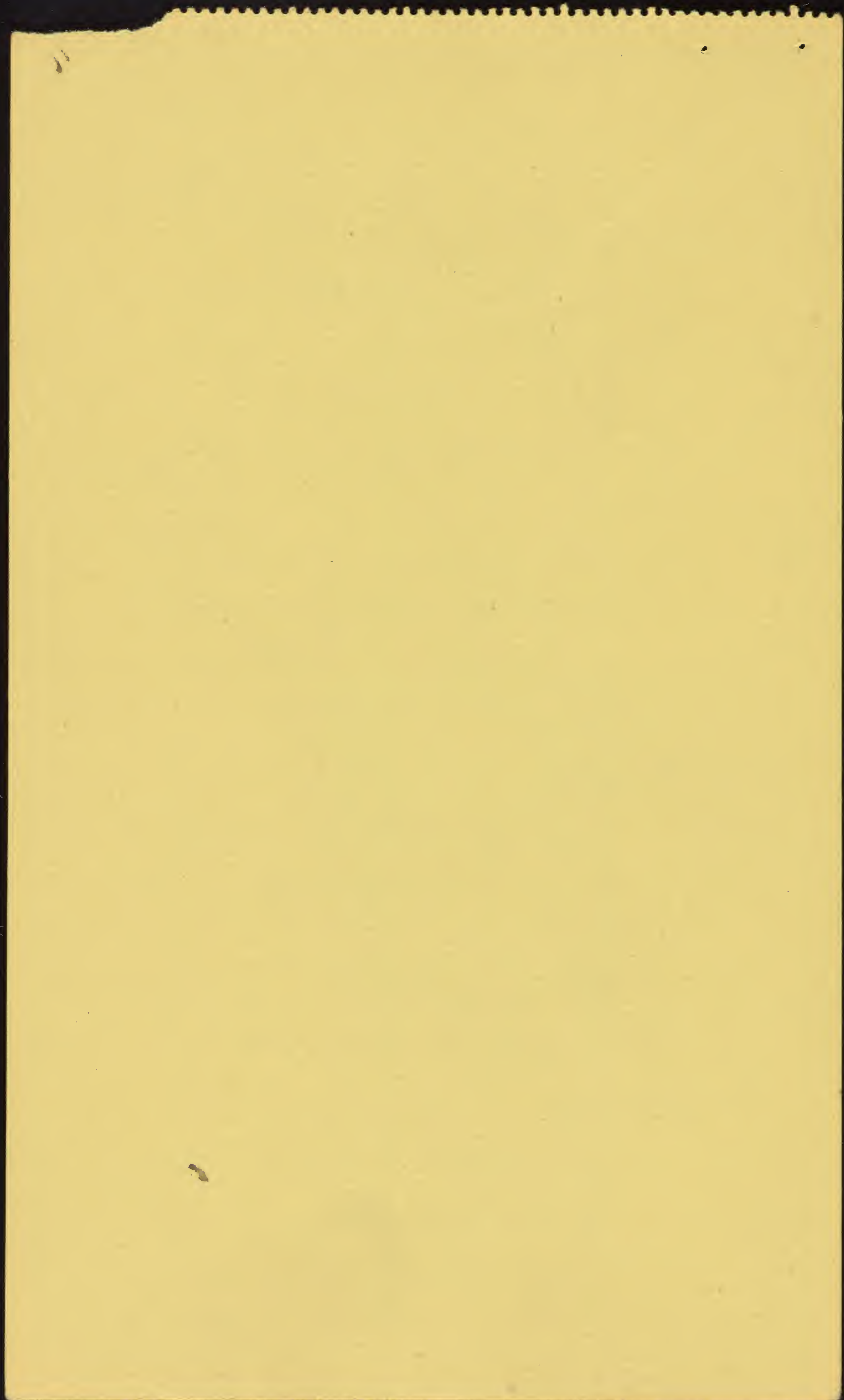
Agraulos

Ptychoparia

Zacanthoides.

This fauna appears to be similar to that of the







11

same horizon on Mount  
Bosworth and Mt Stephen.

- 18 (4) Shaly limestone with  
thicker oolitic limestone  
layers interbedded. The  
limestones become more  
arenaceous in the  
lower part.

6

- 19 (3) Gray and dirty brown  
thin bedded sandstones  
with coarse anelis  
trails and mud cracks  
on the surface of  
many of the layers.

Eight feet from the  
top two calcareous  
layers occur and an-  
other 9 feet from  
the base.

27



5/



20 (2) Shaly gray and brownish sandstones passing down into drab colored argillaceous and arenaceous shales with thin layers of hard sandstone.

11 feet from the top there is a thin band of purple shale 57

Fauna:

Many fragments of a large species of *Olivellus* occur in the interbedded sandstones in the lower 20 feet.







5<sup>th</sup> - Piran formation,  
 21 (1) Gray quartzitic  
 sandstones in  
 layers 1-3 feet thick  
 weathering rough on  
 the surface

55

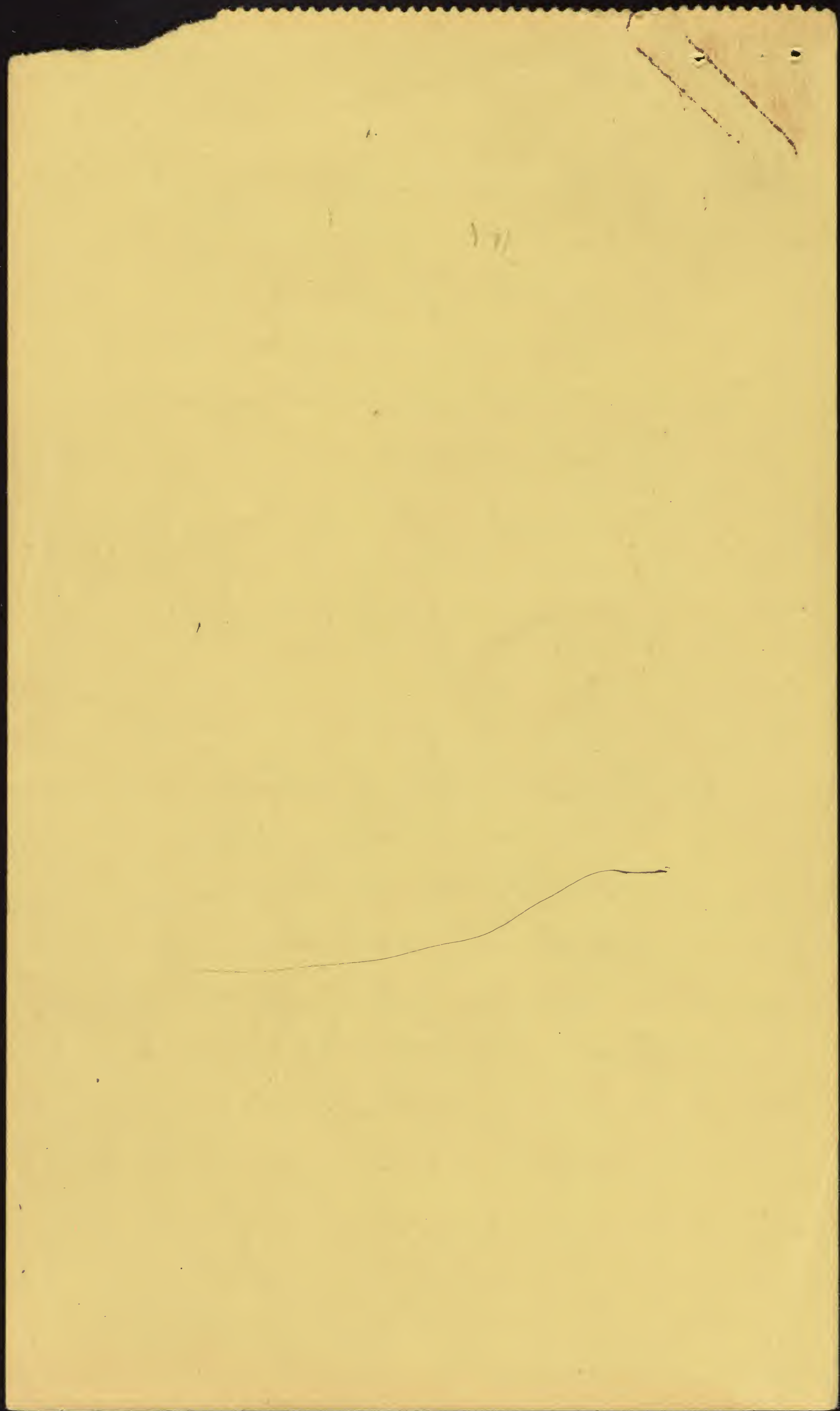
Fossils:

Fragments of *Oleuthus*

In the cliff at the  
 southwest end of the  
 mountain there  
 is about 200 feet of  
 the quartzitic sand-  
 stones exposed

~~7~~







JULY 4, 1910

F3

Box 30

RU7004



N. Y. July 4/10.

Upper Cambrian

Kicking Horse valley.

The ridge of Mt Hunter on the north side of the C. P. Ry between Altentail & Palliser, is capped by the limestones <sup>+ shales</sup> of the Paget & Sherbrook formations in the same manner as the ridge of Mt. Vaux. The valley of the Kicking Horse river cuts ~~through~~ the shales (Palliser) ~~between~~ beneath the limestones between Altentail and west of Palliser for two or three miles. The ridge of Mt Hunter is dropped by a fault N + S - along the line of the Kicking Horse so that the limestones are



along the track July 4/10  
of the C.P.R. on the  
north side of the  
river and 2000 feet  
or more above the river  
on Mt Vaux

The limestone with  
some interbedded shales  
& siliceous beds for the  
upper 4000 feet of Mt Vaux.

Mt. Turner,



Fossils at <sup>a. b. c.</sup>  
x. x. x.



Van Horn Range

July 1910

From Mr Vaux the  
synclinal nature  
of the Van Horn Range  
is very clear.

The occurrence of  
Cambrian fossils  
at Lean chail  
station - also at  
Uapta Falls indicates  
that the mountains  
on the south, Vaux,  
Chancellor - etc. - may  
also be in a syn-  
clinal zone of

The <sup>limestones of</sup> west ridge of  
Mr. Hunter strike N.W.  
& are above the  
fossil bearing rock  
of Lean chail

Mc Connell interpreted  
the structure of the  
Van Horn range



## Composite Kicking Horse Section.

Brisco. Silurian 1200±' thick-bedded gray  
rough weathering sil. mg. ls.  
Halysites, Strophodonts, etc.  
Graptolites - Monograptus, Retiolites  
etc

Bearfoot Silurian - 400±'. Gray, compact, cliff-forming  
ls. chert nodules.  
Richmond fauna. Receptaculites  
Columnaria. Heterodella etc

Glengyle. Ord - 1700±'. Black sh. some places with thin  
ls. Graptolites in upper part.  
Didymograptus, Diplograptus.  
Chimacograptus etc.

Mons 3800' - in Bearfoot-Brisco.

Goodsir 6040' - (shales. hard & soft.) cherty ls.  
& siliceous shales in mt. Goodsir.  
Housia fauna in lower 300'.

Ottertail 1825±'. ls. & sh.  
Prokainella near base.

Chancellor 4500' - gray, yellow, etc. sh.  
Trace of agnostus.

Shebrook 1375' - on Mt Bosworth.

175' - massive gray blue ls. some chert  
trails only.

190' - Gray oolitic ls.  
Crepicephalus

335' - greenish and gray sh. with oolite  
beds.

65' - gray oolitic ls. shaly.  
Krugtonia etc.

610' - Aren. dol. ls.  
(See next page)



## Kicking Horse (2)

Paget 360' + 60' - massive bluish.

300' + oolitic ls.

Cupicephalus etc.

Bosworth-1587' - 600' + massive dol.

422' - Shaly + thin-bedded ls.

48' - green, sil. sh. with layers

517' - of ls.

Lictomp. 268' - green, deep-red, buff, yellow, gray.

Eldon 2728' - 410' gray sil. aren. ls.

"Ptychoparia"

110' - light + dark gray.

197' - massive sil. ls.

Bellingsella? neoleum.

91' - massive ls.

95' - thin-bedded gray ls.

~~190~~ Isoxys, Obolus, Euthia etc

190' - massive ls.

1655' - " " cliff-forming

Stephen 640' - 315' - Dark ls.

Nisusia, Micromitra, Dorypyge etc

23' - green sil. sh.

Obolus

22' - thick ls.

Nisusia, Micromitra.

70' - green sh (sil).

210' - bluish ls. shale below

Glossopleura, Obolus etc

Cathedral 1212' - thin an massive mostly gray ls. Trails

Ptarmigan 664' - (see Ross Lake sec)

Mt Whyte 390' on Mt Bosworth.

120' - thin-aren. ls. (trails)

44' - oolitic ls.

Jamesella, Alenopsis etc.

Agg. shale  
first in sec



## Kicking Horse 3.

60' - massive layers blue ls. &  
ss 1-2".

*Cephalopodus*  
31' - gray and brown ss.  
"Ptychoparia"

115' - Sil. sh. with some ss.

20' - gray ls & greenish sh.

ls. *visusia*, *mesonacis* etc

---

St Paul 503 - on mt Rosworth.  
ss & shales. *Olenellus*.

---

Lake Louise 105 (Lake Louise)

---

Ft Mountain 600' + gty. ss.



Mt. Temple.

sw. end at Sentinel Pass.

Mt White 171' -

mostly shale.

St Piran. + 71 Mt.

In the Giant Stairs on <sup>W. side</sup> Paradise Valley.

---

Short River. #

On Rocky Mt front north of Short  
River. Devonian rests directly  
on Ptarmigan.

#



Ross Lake section. (in amphitheatre)

Cathedral 1086'

Ptarmigan 664'

(Ross Lake shale upper 165')  
albertella

Mt Whyte 248'

some white  
Kochiella fuma above. ←  
Borrad + Olenellus below. (sandy)

St Piran Purplish quartzites

#

Mt Schaeffer

Mt Whyte 1604'

Borrad, Nisus, etc.



Mt Odaray.

Stephen 200'

Cathedral 1200'

(P. armigatus?)

Mt Wye 250'

St Pisau 1500'

#

---

---



# Ranger Canyon Section.

Camp just above Ranger station.

Carboniferous - nearest valley. Dip S.W. at high angle.

Permian Dark ls with shale at base.  
Messines ls. corals, etc.

~~Carboniferous~~  
Sarbach 124'. Compact & dolomitic ls. chert.  
(no fossils reported) (Saw *Lecanospira*)

Mons 986'

236' Thin layers of gray ls. with small concretions  
72' below top. *Oriskania* etc.  
95' - small ceph.  
750' - Thick bedded gray ls. with shale layers.  
476' down *Symphysurina* frag.

Sabine 400'

190' - massive gray ls.  
near base *Cryptozoon*  
120' - Thin layers hard ls with shaly partings.  
*Sankia*, *Hardyia*, etc.  
*Eoorthis*  
90' - Thick, gray, oolitic ls. weather reddish brown.  
some lotryoidal layers.  
Fauna in lower 30'.  
*Eoorthis*, *Syntrophia*, *Ptychospira*,  
*Platycolpa*, *Briscoia*, *Sankia*  
etc

Lyell 1470'

1325' - Aren. and mag. ls. mostly heavy.  
145' - gray oolitic ls. with cal. shale.  
*Irvingella*, *Lingulepis* - etc.  
*Idahoia*.

(over)



Bosumth. 165'

bluish gray compact ls.

(no fossils reported)

---

Arctomys - 95' - shales and ss. (green, red etc)

---

Eldon - 300' - no fossils, mg. ls.

---



## Vermilion Pass

Going up L. Vermilion creek for Boon  
over drift for over 2 mi. Then over  
Belt series.

Contact of C cong. with shales of Belt  
in Canyon n.e. Boon Mt.  $\frac{1}{4}$  mi  
above large lake on creek. (Boon lake).  
7 ft. Mountain form.  
#1

At lower end of upper pond on the north  
side of the Pass a fine outcrop of Lake  
Louise shale occurs and above that the  
sandstones of the St Piran formation.

At the upper (south) end of the upper  
pond numerous L. C. fossils occur in  
a light gray, thin-bedded ss. of the  
St Piran. (6013) (Tranmeria, Obolus etc)

The St Piran sandstones form cliffs back  
from the pass on the west side in  
Boon Mt. and the high ridges north of  
Storm Mt. on the southeast side. There  
is a fine section up to the base  
of the limestones of the Mt Whyte and  
on up thru to the massive limestones  
of the Cathedral formation which form  
the summits of Storm Mt on the  
east and Mt Whympere and Boon  
Mt on the west & n.w.

The Mt Whyte on Mt Whympere has  
a few layers of oolitic limestone  
interbedded in bluish black, thin-  
bedded limestone with white fragments.

at no point within 5 mi. s.w. of  
the pass do the limestones reach  
the canyon bottom and the Olenellus  
gilberti zone is 1000' or more up the  
mountain sides.



## Mt. Stephen.

Eldon. 2700+ - massive, gray, dolomitic ls.

Stephen 902'.

190' - poor fossils.  
150' - Fossil bed.  
325' - Dorypoda, Cygopsis etc  
84' - no fossils oolitic  
4' - Eodiscus etc  
148' - oolites & dolomites.

Cathedral 1680'.

60' - massive ls.  
1560' - arenaceous, dolomitic massive  
60' - " " "

Ptermigan

Ptermigan must be subtracted from  
Cathedral or Mt Whyte or both.

Mt Whyte 215'.

3' - dark ls.  
muscia, Scenella. etc.

108' - gray  
Arenellus, Scenella. etc.

52' - hard ls.

same fauna with Polioella.

32' - Brownish qtz layers.

Bornia, etc. Arenellus.

102' - shale siliceous

Kochiella, Scenella

18' - ls.

Kutorgna, muscia, Arenellus etc

St Piran 300' - massive qtz.



Ptarmigan Peak. (n.e. face).

Cathedral 2100' estimate. worm trails

Ptarmigan 426' top Zacanthoides & Neobryozoa constans.

Mt. Whyte 342'

top. 28'. thin bedded dark ls.  
crepicephalus

62'

135' oolite. niscia, etc.

57'

43'

17' hard ss. Bonnia & Mes. etc.

St. Pierre 785' ss. + ~~gtz~~  
Alveolites etc.

Lake Louise 28' cruziana

Ft. Martin 452' - massive gtz.

Hector. greenish shale & coarse congl.



## Lake Louise & Lake Agnes.

Mt St Piran, Mt Whyte in vicinity of L. Agnes are on the Beehive down to L. Louise and on n.e. face Fairview Mt.

Cathedral. 1500' (est)

Ptarmigan (not det in field)

Mt Whyte 458'

103' oolite, etc.

66' ss. & ls.

38' greenish sh.

64' " "

Kochiella. Pachiella

115' - aren. ls. & greenish sh.

oleuella frag.

72' - Brownish & gray ss. with gr. sh.

Bornia. Scenella. Ol. etc.

St Piran 2632'

oleuella 2000' down.

Lake Louise 105'. creyiaua & micromitra sil. sh.

F. Mt. 940'



# Castle Mountain.

S.W. front. around ne. into amphitheatre

Bosworth <sup>423'</sup> gray to black ls with sil. layers. 50'  
"Pty" etc

45' - Kingstonia ls. sil.

265' - aren. ls.

63' sil "

Anctomys 218' (calcareous)

Eldon 1905' massive to thin bedded ls.

fossils few. trails abundant.

Stephen 366'

ls. + shales. lower oolitic layers  
138' Dorypyge.  
Bathyuriscus.

Cathedral 705'-

Pharmigan 270'-

12' - black ls.

albertella

260' - aren. ls. amebids.

Mt Whyte 248'

40' - black ls. Paliella

96' - oolitic - frags.

22' - ss. Paliella

6' - oolitic

27' - ss - horn.

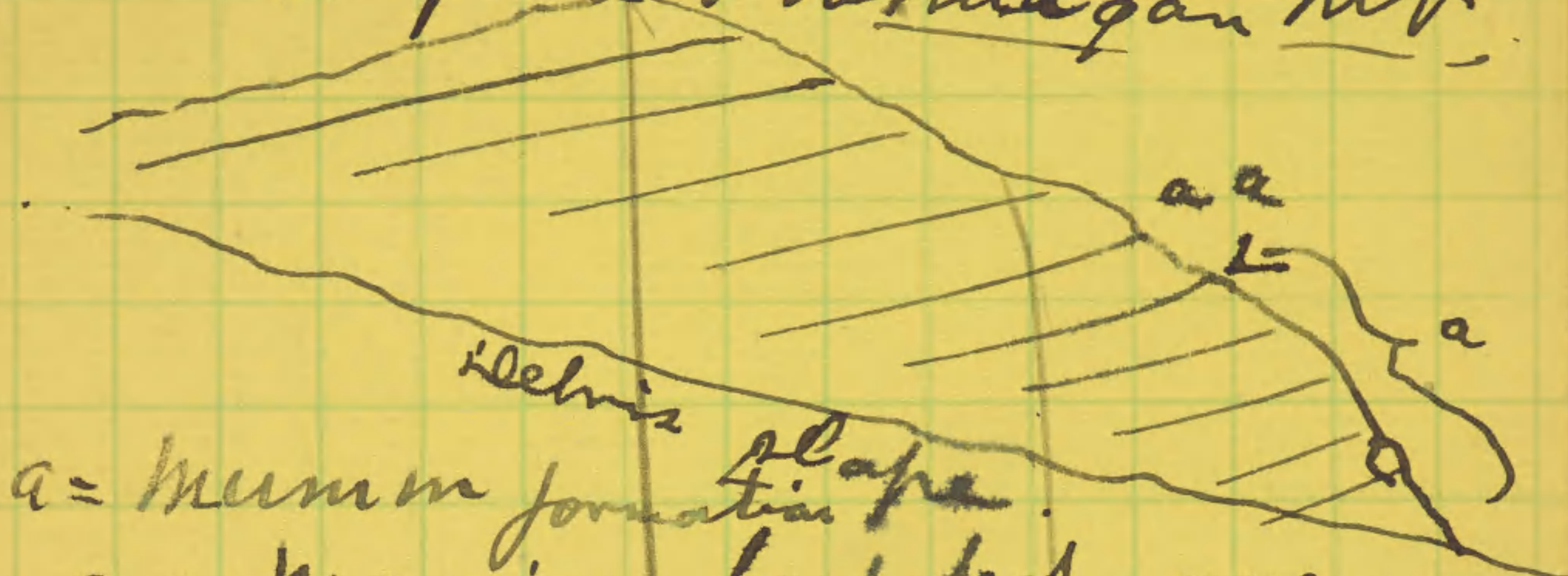
57' - shaly ss.

olenellus in purple band.

St Piran 55' - gtz. olenellus.



M - C. Aug. 8/12  
N. face Ptarmigan Mt.

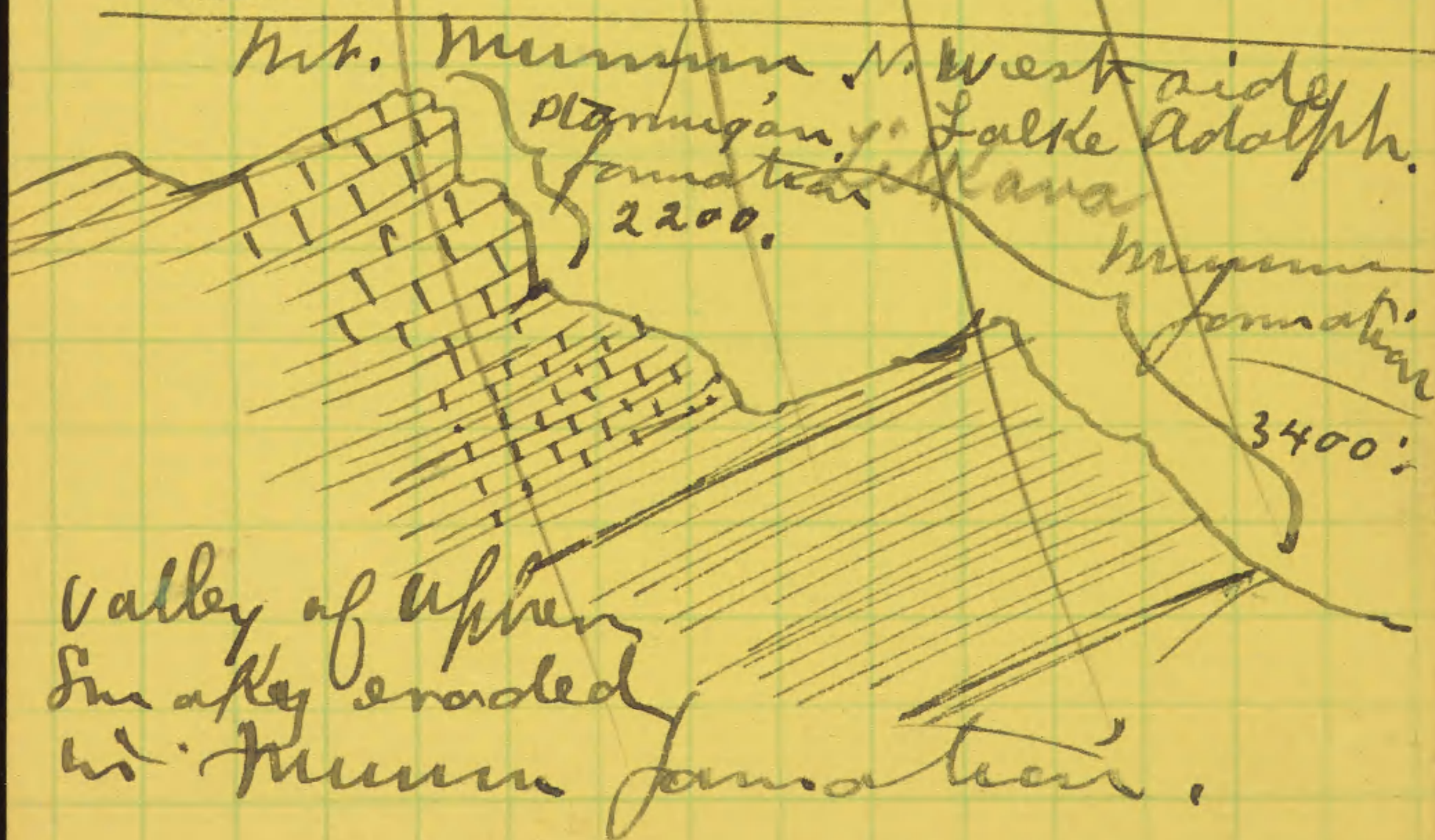


a = Mumm formation

a = massive bedded grey  
arenaceous, buff weathering  
limestones 600 feet.

a.g. Bluish black lm with  
fossils. dip 30° S. E. W  
St. N. 30. E. W

(67<sup>l</sup>) for list





61K



Aug 6/12

Blue-gray lm. at S.W. end  
Monadnock at end of glacier.  
St. N. 30, East, dip 30 S.W.

---

medial Marquette, heavy  
+ light gray Robson.  
Dare, colored, massive  
bedded lm:

Gray, conchoidal, magnesian  
lm, weathering buff.

Siliceous & calcareous  
gray shale with mag-  
layons - weathering buff.

Cleaned.

No trace of fossil.



100 (125)



Aug. 5/12.

Cambrian.

Robson section

Playmagon  
Robson

Mt. N. of

Green & purple shale

Woolly

(A)  
Part

Gray + light gray limestone

Samoa-Stephen

Ice - 900 ft. high - 200.

Thin bedded  
900 ft. high  
200.

Light gray shale

Ice

xx

xx. Dark limestone with  
Cambrian-Ord

Great glacier

See photos -

moraine



July 13, 1913

F2

Box 30

R67004

Non-Suicide  
LIGHT IMPRES  
Renaissance



July 13 / 13.

Rabzon

section



On the south west side of Lake Kinney the Lower Cambrian sandstones rise at a high angle ( $60^\circ$ ) to the S.W. On the N.E. side of the lake the gray thin bedded middle Cambrian limestones ~~form~~ ~~form~~ cliffs beside the trail ~~at~~ above the head of the lake. Below the fork of the lake ~~north of~~ ~~head of~~ Rainbow



Canyon the <sup>2</sup>m - C - limestones  
have an increased dip &  
the Lower Cambrian  
sandstones appear beneath  
them.

From the data now at hand  
it appears that to the south  
the hill (Lake Kinney Station)  
is formed of 4, C. sandstones  
that rise at a high  
angle from beneath the  
limestones.

At the N.W. end of  
the Lake Kinney <sup>grange</sup> plat  
a spur of Whitehorn Peak  
rises abruptly. It is formed  
of massive bedded m - C -  
limestones dipping 30° N.

L. Cambrian  
Sa

L. m. C.

(On back)



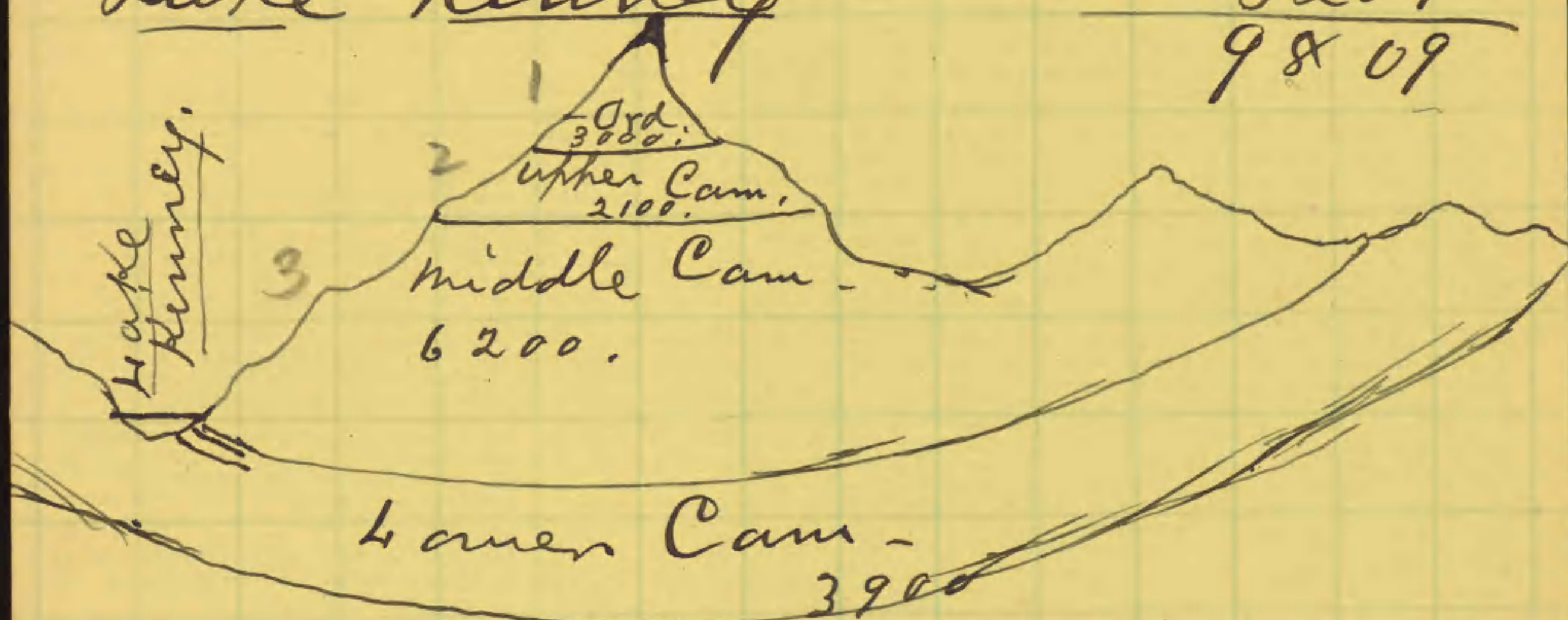
(2<sup>a</sup>)

The limestones of the spur  
extend across to the Little  
Grizzly Peak side but  
they are quickly cut out  
to the S.W. by the abrupt  
rising dip - N. of Little  
Grizzly Peak the L. - Cam.  
sandstones ~~11300~~  
~~9800~~  
1500 are vertical.

2450.



The Wheeler map gives  
 Robson Peak a height  
 of Lake Kenney  $13068''$   
 $\frac{3259}{9809}$




---

My section of 1912, gave		
1 Ord -	3000.	Estimated
2 Upper Cam	2100.	"
3 Middle "	6200.	"
Lower "	3900.	

---

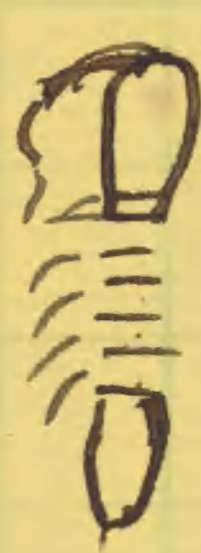
Of the above 1, 2 & 3, are  
 exposed on the S.W. slope  
 of the mountain - except  
 about ~~3~~ 1000 feet of the  
 base of 3. This indicates  
 that my estimates for the  
 thickness of the 1, 2 & 3



are 500 feet too great,  
or that the thickness  
of the formations is  
greater to on the N. E.  
side of the mountain.  
(The work of 1913. should  
check this).

Fossils. Found typical  
fragments of Alveolus  
in the sandstone two  
or three hundred feet  
below the limestone.

At about 600 feet  
up in the limestone Sidney  
found a small trilobite.

 that suggests Protypus  
by its cephalon. It  
appears to have had  
5 thoracic segments.

(East side lake.)

(Work on the mountain -  
Rain signals at intervals)



400



5 July 1913

Rabson section.

Where trail goes up cliff at lower end of Lake Kinney - (East side) it passes over sandstones dipping  $40^{\circ}$  N. under Rabson Peak. (Fragments of Alenellus occur in sandstone) about 100 feet above the lake.

On the opposite side of the lake (S.W. side) the dip of these sandstones (Mahto formation) is  $60^{\circ}$  to  $63^{\circ}$  N.

(61X)  
With Stuart found a number of fossils (61X) in the thin bedded limestone 500-600 feet above the sandstones - M - C - - Ptychoparia, Cystid - (Rain squalls a.m.)



1,050,000



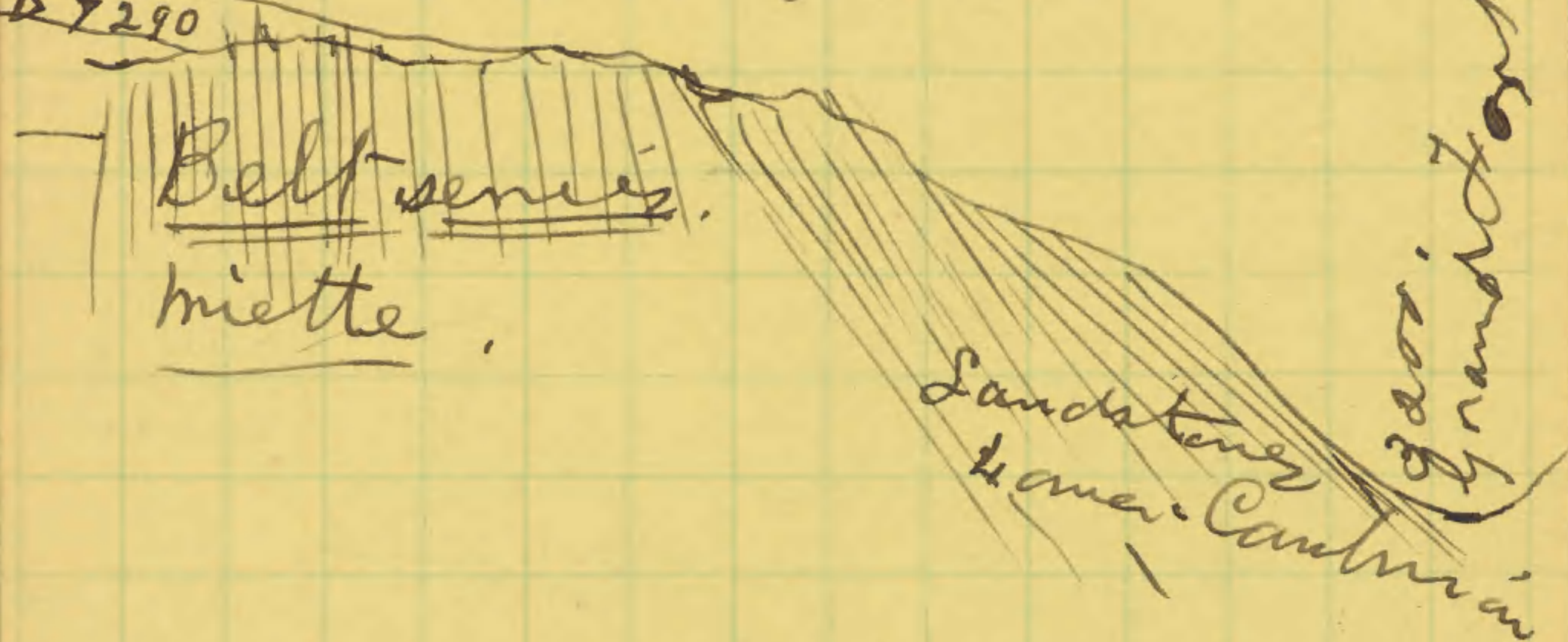
6

July 16/13,

Base of Cambrian

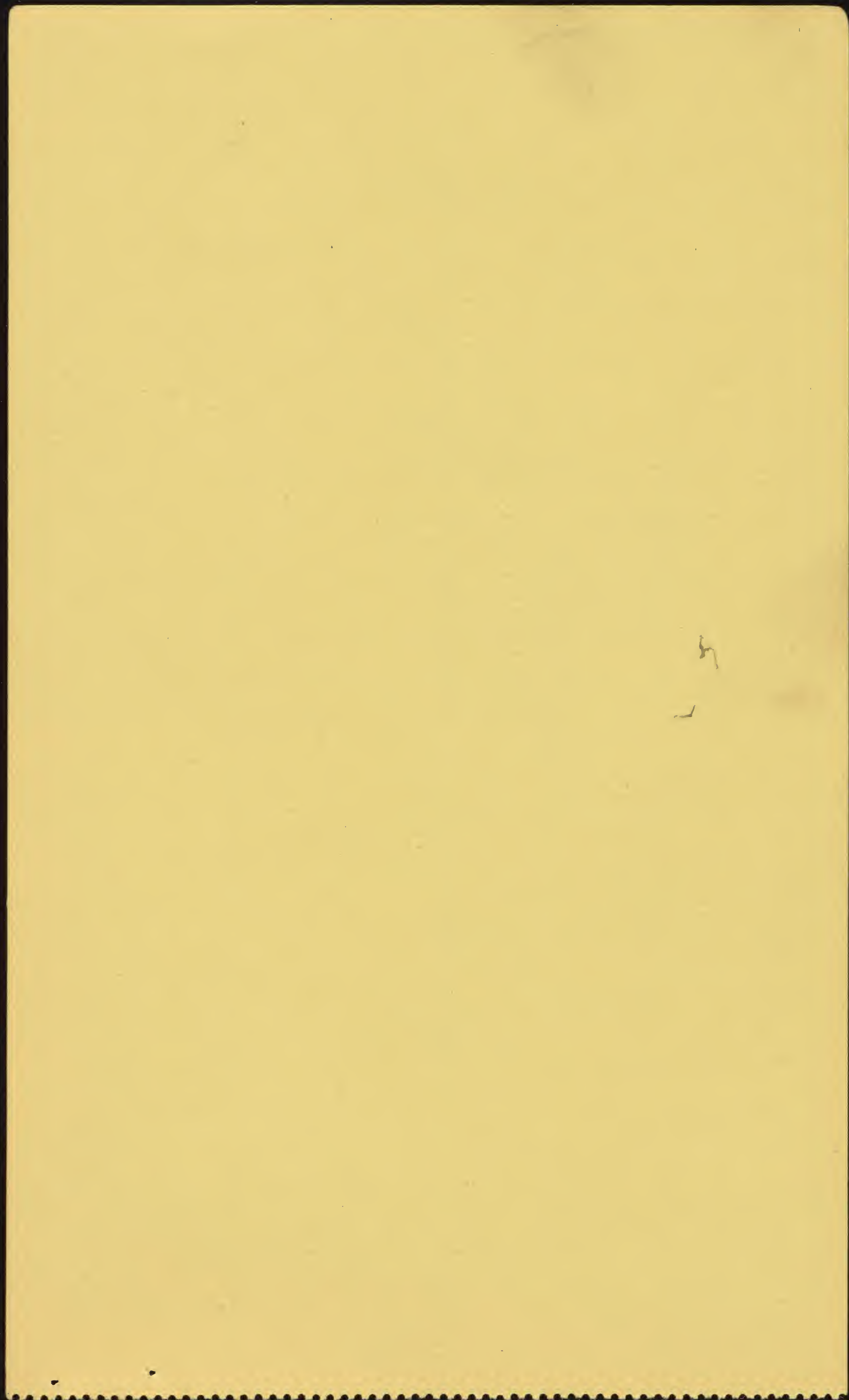
Robson W. station - of Wheeler

D 7290



To the south & west  
of Robson Peak the  
Lower Cambrian sandstones  
rise with a dip of  $30^{\circ}$   
 $45^{\circ}$  to  $60^{\circ}$  and on  
the high ridges are  
nearly vertical where  
they come in contact  
with dark weathering  
purple thin bedded  
hard sandstones that  
have a pentical dip  
on both sides of the  
Grand Fork river at







7.

Rabson W. Station (7290') and  
Lake Kinney Station (6842')  
of Wheeler map.

The approximate line  
between the Cambrian  
+ pre-Cambrian is  
a little north of the  
summit of Lake Kinney  
station on the ridge  
above Rainbow Brook.



17



The south<sup>8</sup>~~west~~ slope of  
Robson Peak presents  
one of the great unbroken  
& stratigraphic sections  
of the world. From  
base to summit, there  
are 9800 ft of limestone  
& with the upturned  
strata to the S. S. E.  
that come from beneath  
the cliff on the ~~the S. E. shore of~~ Lake  
Helena (Kinney) at least  
10500 feet of limestone  
& 3000 feet of the  
underlying sandstones  
are <sup>clearly</sup> exposed to view.

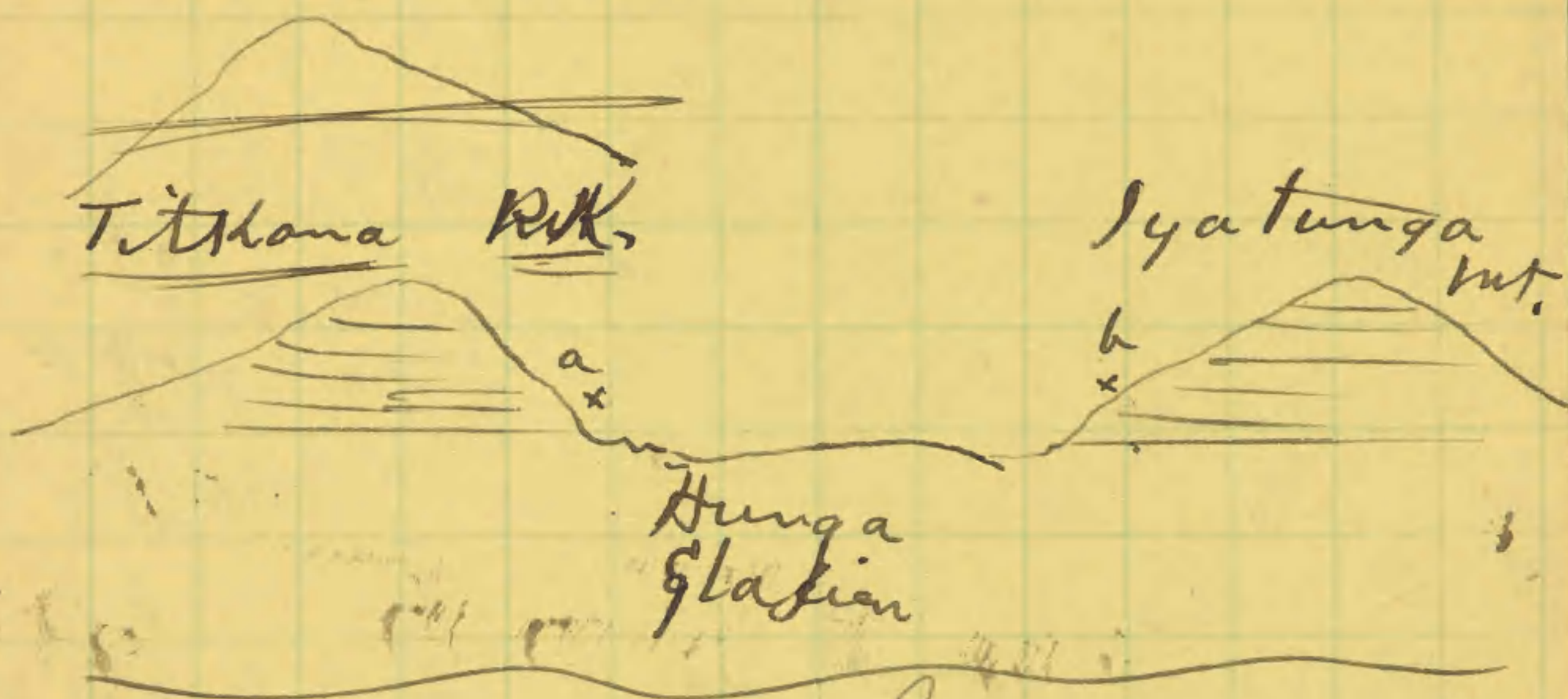


RV 7004 Box 30 Fir

July 22, 1913



July 22<sup>d</sup>  
13



Looked for fossils on E-  
side Iyatunga Mt. so as  
to correlate with strata  
of Titikana Mt. on opposite  
side of Hunga Glacier.  
Above the lower  
band of dolomitic  
limestone found in  
thin bedded bluish  
gray limestone. The  
same fossils as on  
Titikana Mt. The  
strike of the strata  
also indicates that



2

the broad canyon  
valley in which Hunga  
glacier flows has  
been eroded from  
what was a practically  
continuing series of  
strata between Tithana  
& Gyatunga.  
Fossils.

62b)

Micrometra 2 sp.  
Lingulella maccannelli -  
Hyalithea -  
Ptychoparia 2 sp.  
etc -

On the west side of  
Hunga Glacier found  
the fauna of 614 -  
or the Billings but the  
fauna - in the  
lateral moraines -  
This shows that



the strata of Billings  
Butte occur some-  
where on the N. W.  
side of Hunga  
Glacier well up  
Teton and the Helmet  
between Iyatunga Mt  
& Rohrer Peak.

Helen climbed Iyatun-  
ga & brot down  
a piece of limestone  
with Hulgaia fauna  
of Billings Butte.



Lynx limestone. July - 21 / 13.  
Taking photos from S.W. slope of Tittkana Peak - with Robson Peak as the central & impressive feature.

Robson section.  
Collected a few fossils from west base of Phillips Mt.

At about 300 feet below the fauna of Billings Butte. I found a few specimens in gray limestone (Loc. 614) in the Lynx formation. (S. M. Call. 5). p. 337.)

Lingulella cf. manticula O.O.  
Ptychoparia ( ? ) sp.  
" " ( ? ) tubercu-  
lated or granular surface.

613- About 400 feet below 614.  
Ptychoparia ?





R67004

Box 30

F3

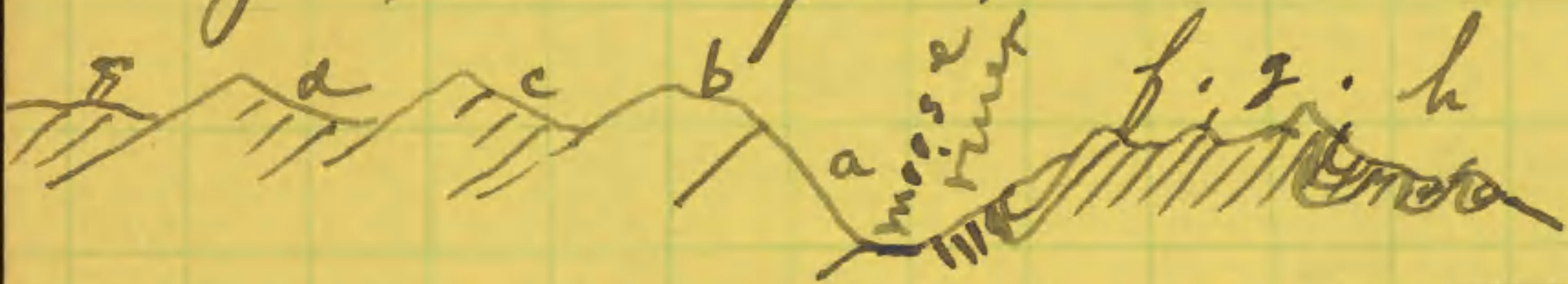
July 26, 1912  
" 27,  
" 30



July 26/12

Canadian Rockies,

4 mi South Moose River  
Pass over to Smoky river  
8 mi N. E. E. of Mt. Robson  
B.C. On east slope  
Lynx range.



{ h. Thin bedded lmn.  
g. Reddish thin bedded lmn + sds  
f. Grayish blue thin bedded lmn  
f-g-h = Upper Cambrian

Fossils from f-g-h -  
see collection made from  
river drifts. July 25/12

Ptychoparia  
Anomodone  
Hæmurus

collected by  
H. J. G. 1912



July 26/12

e. Gray banded lm. 1000

d. massive bedded grey. (Reddish weather) lm. 1600.

c. black <sup>trans</sup> gray beds - 500.

b. Thin bedded quartzitic sandstones 1000 +

a. massive bedded light gray & pinkish quartzitic rocks 1500 +

### Interpretation

limestone on east side  
f. g. h = Upper Cambrian  
fault in Moose river valley

d + e to middle Cambrian

c = lower Cambrian =  
wh. wh. formation.

b = St. Pierre formation.

a = Fairview formation.

all thickness estimated.



3

July 26/12,

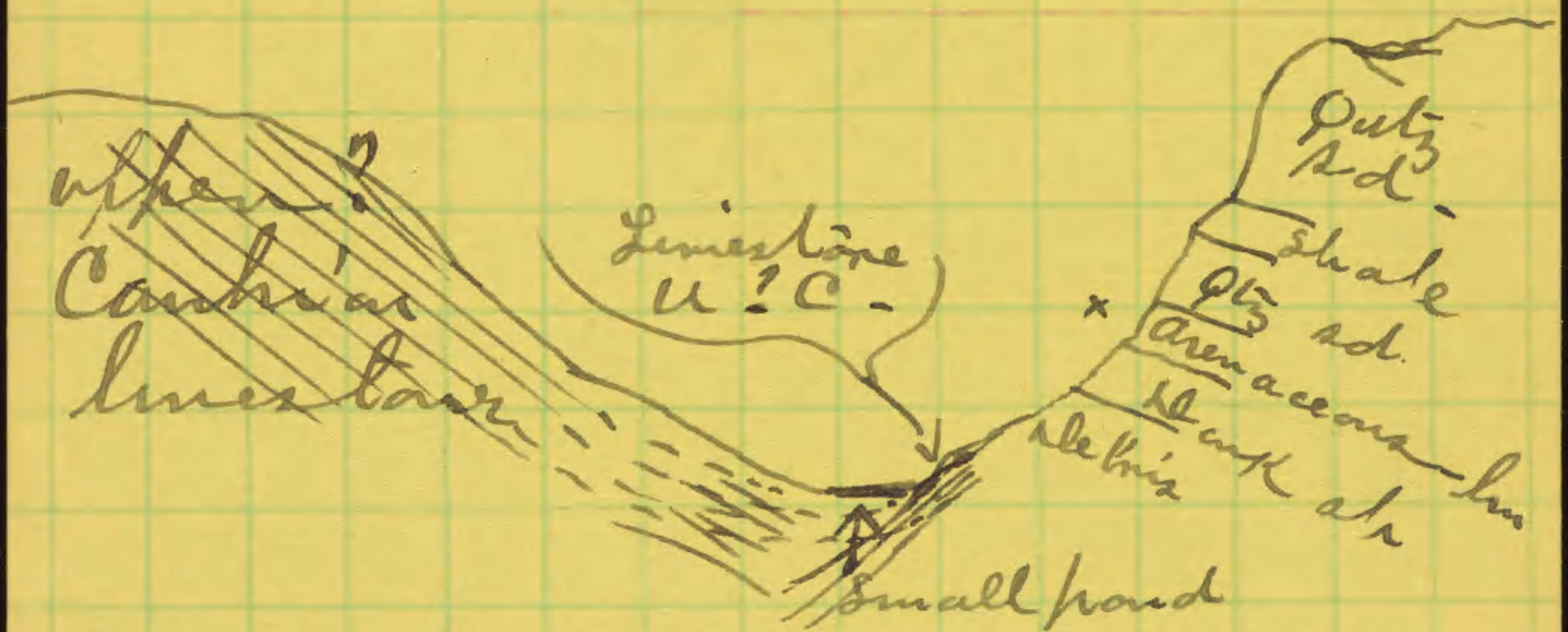
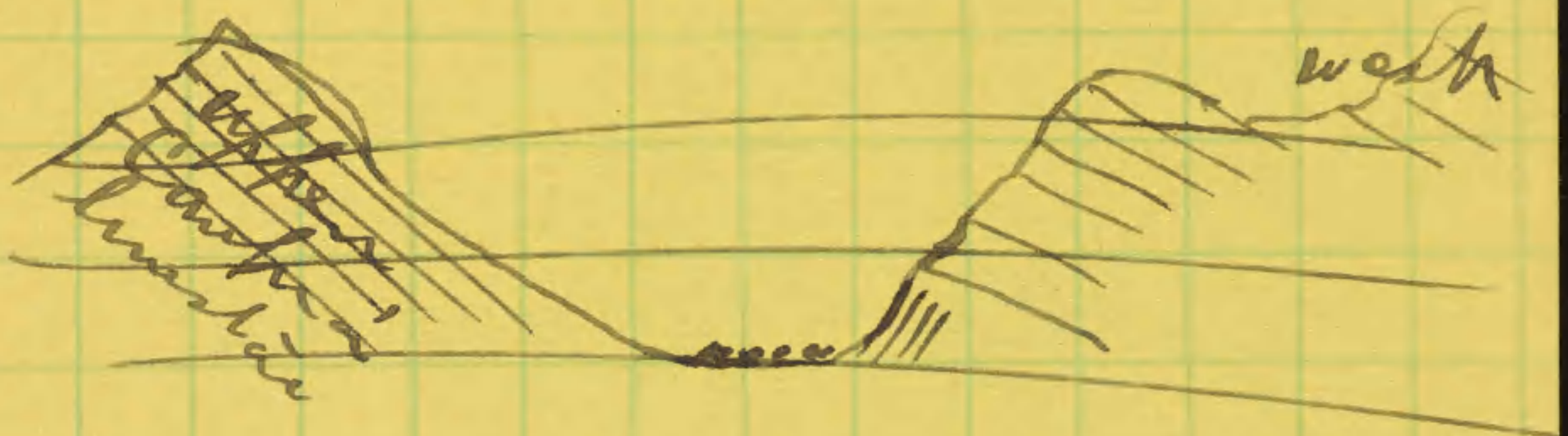
In the stream  
drift ~~found~~ found  
Agraylar -  
Ptychoporia.  
Bornemannia sh.

Same fauna occurs  
at summit of Mt  
White formation -  
L.S.M.

---



July 27/12  
 Cross section of Moose  
 river valley about a  
 mile from its head &  
 pass.



x. shale (schists) with Salterella  
 & Hyalithellus & annular trails...

Salterella also occurs in  
 shaly to gray limestone.



5

July 27/12

On north slope of Moose  
Pass found drift block  
of gray limestone containing  
Bathyriscus sp. One  
entire, broken specimen  
can be worked out by  
skillful manipulation.  
Work out left half, glue  
right half on & then  
work that out.

This fauna is about  
the same as the Idaho <sup>and Utah</sup>  
M - C. containing  
B. hurrelli.



July 29/12.

Pass at head of river.

$a = \text{Phillips point} = \text{Lahr}$

$\bar{r} = \text{Calumet wt.} - \text{machete}$

Smalley

planning  
never

Zitkana

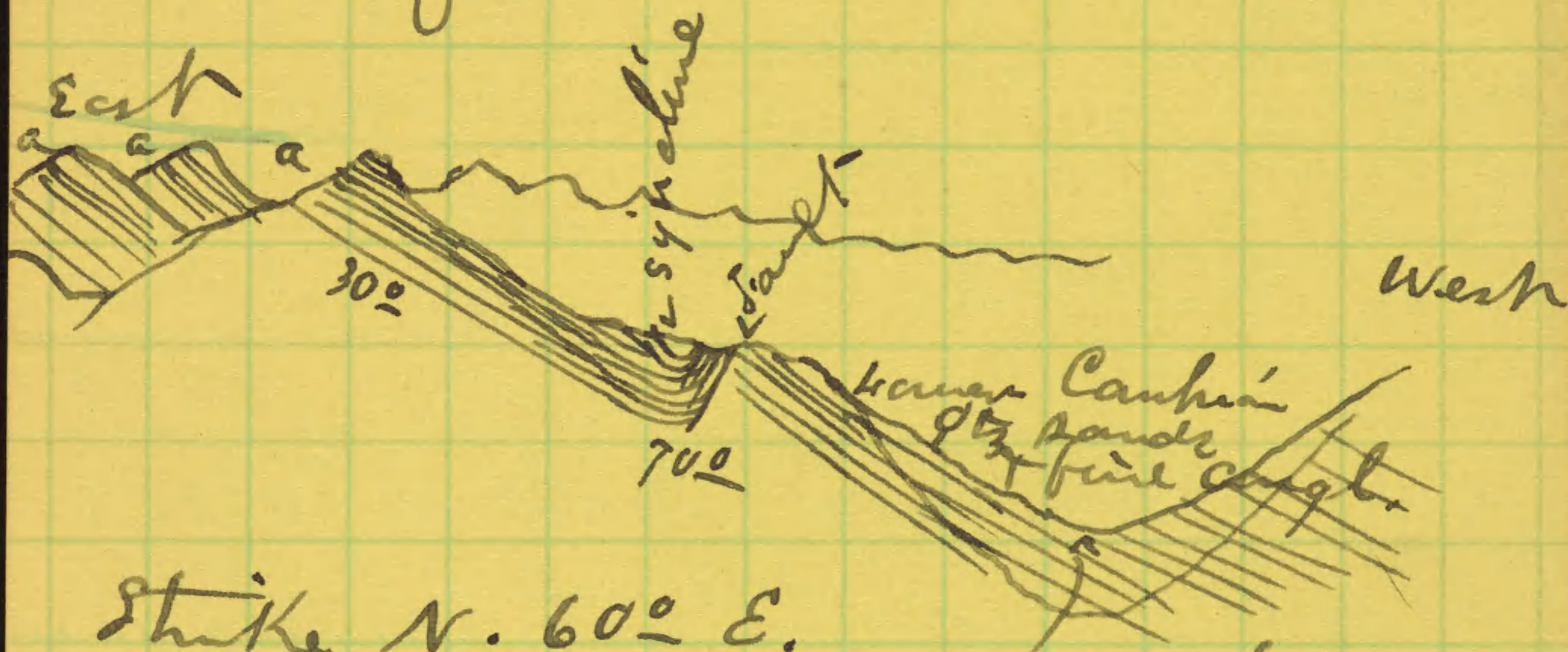
Palmer Lake  
D Pond

5. Salterella -

7 Alenebus canadensis



7. July 30<sup>th</sup>  
 Fault crossing  
 Moose river ~~Pass~~ <sup>Pass</sup> as seen  
 on east side in Mt.  $\frac{1}{2}$  mi  
 N. E. of divide.

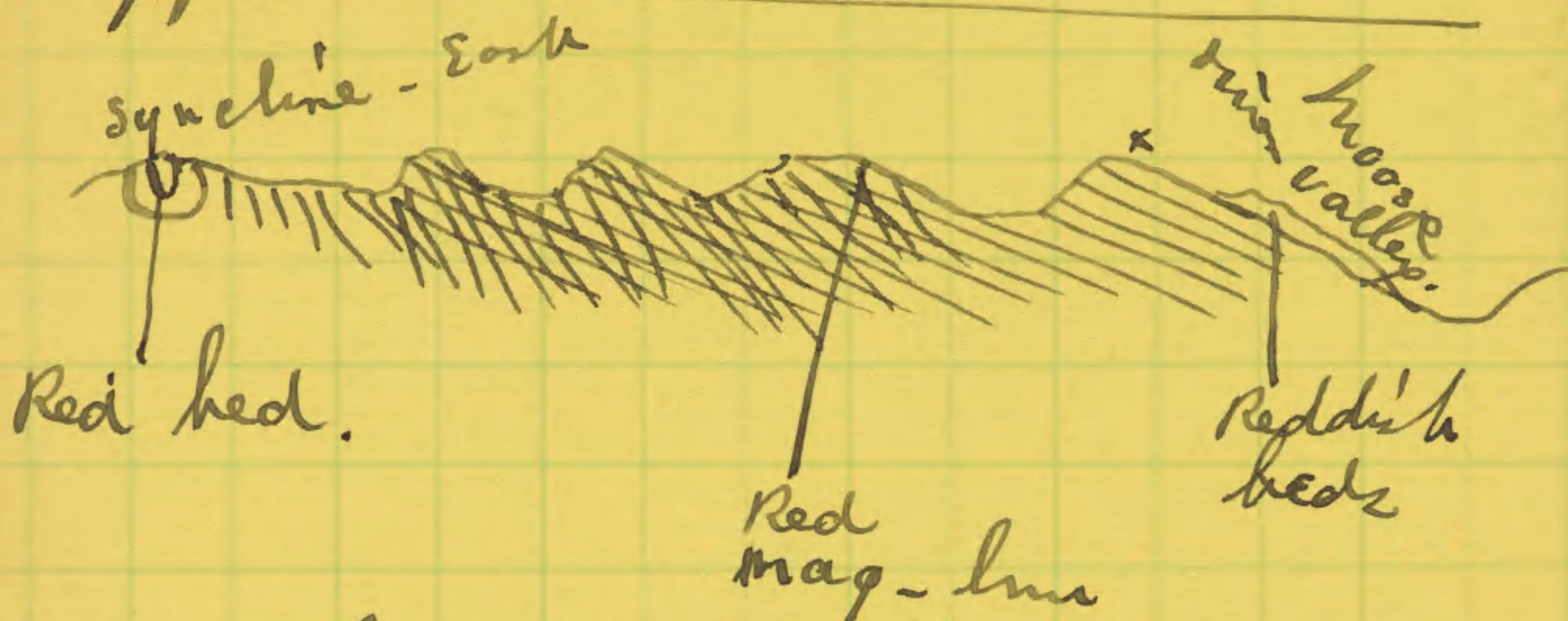


N. E. branch  
 Snake river

~~Upper~~



8 July 30/12  
Upper Cambrian.



Thin bedded bluish gray  
lms. with a little shale  
intercalated.

Estimated thickness 3000 ft.

Found large Bathyurus  
July 27 " & 30. derived from x

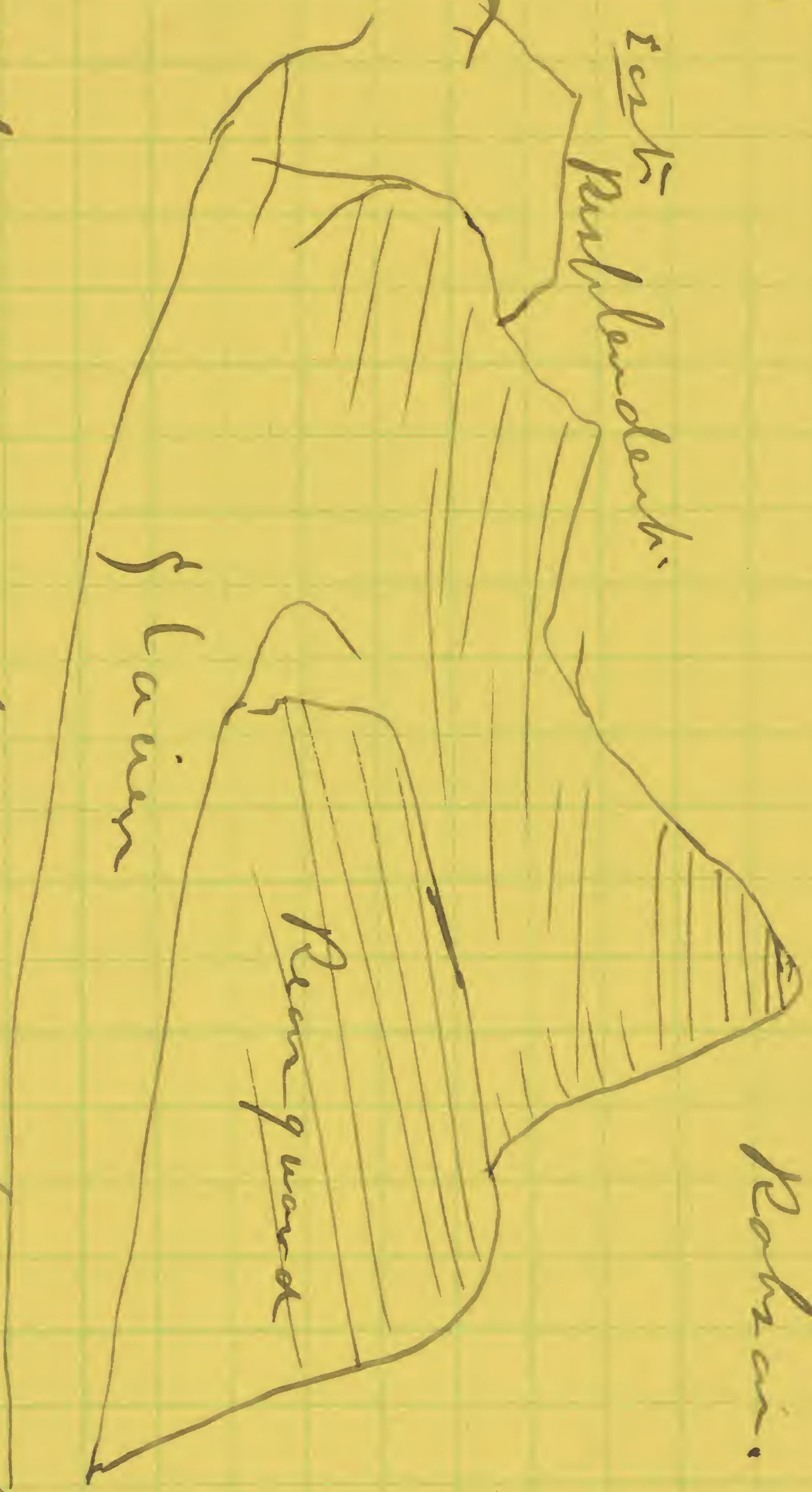


Aug 3<sup>d</sup>

East  
Purple sandstone

Roche

West



Roche is a syncline or even from North



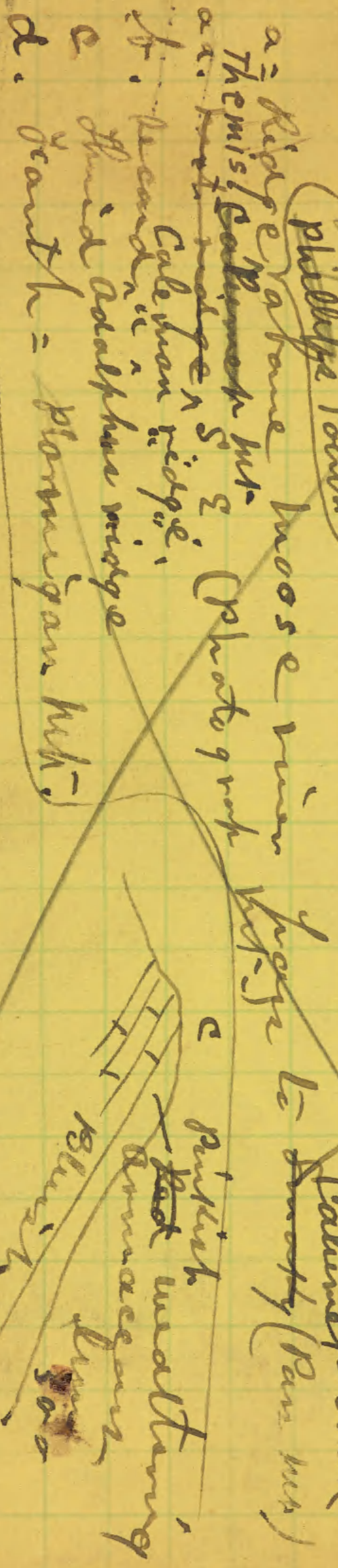
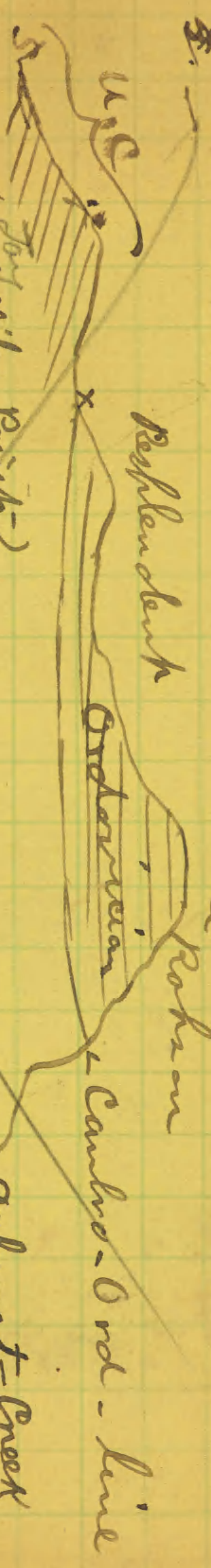
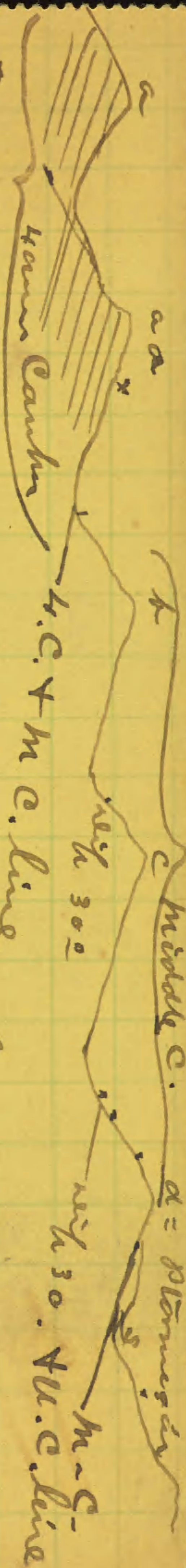
Aug 8/1912

F.3.

Box 30

Rv 7004







2) Mt. Robson region section  
Aug 8/12,

Ondolucina 3000. Robson

Robson  
Upper 2100. 2100. Besplenden

Cambrian  
middle } Plarnigan.

600 Mumm.

1700

~~3400~~ Smoky

A 1500. 300 A D Zing's

B 1600. B

100.

Lower

Cambrian

C 2800. Calumet

D 600. Phillips Lab.

~~2400~~ ~~Laurien~~?

Not seen Aug. 20"



The upper 1500 of Robson  
appears to be a more massive  
bedded ~~arenaceous~~ <sup>arenaceous</sup> limestone  
than the strata below.  
It weathers like the great  
arenaceous limestones of  
the Kicking Horse section  
of C.D.M. (Eldon - Catho-  
dral.) 150 miles south.

---

On the north of Robson the  
Helmet is evidently a  
mass of strata that has  
settled off from Robson  
& the Rean Guard Mt. is  
also apparently displaced  
by small faults on the  
south & north.

Aug. 11/12.



3) Ord. (Robson)

Light gray (dang) ~~calcareous~~  
bluish gray - thin bedded  
limestones in massive  
beds on cliff exposures. 3000.  
(see by back (see fossils)  
of 2)

Upper Cambrian

~~Replenish~~ <sup>44</sup> to Jayation.

Thin bedded bluish gray  
limestones with bands  
of light gray siliceous  
shale - Band of gray - 2700.

greenish & reddish  
shales at base (Tanite) 2100

Middle Cambrian.

An back

Plummergan formation

massive ~~stratified~~ beds  
of bluish-gray <sup>thin layers of</sup> limestone  
~~are~~ intercalated with  
bands of gray siliceous  
dolomitic limestone  
weathering buff - 50 to 100  
feet thick - finely channeled  
on north cliff of Star.  
unqan but + Kanguard.

Titanium



Fossils are abundant  
about 2000 feet from the  
base both in bluish-  
gray shales, weathering  
light gray & in the  
interbedded gray - (Rusty  
weathering) and some  
colored limestone. These  
beds form cliffs <sup>to</sup> at the  
N. E. of Pt. Resplendent  
where the big glacier  
turns from the N. N. E.  
to north-west. The  
fossils from the upper  
(Rusty lm) are Cambro-  
Ordovician as Orthoceras  
occurs with them.

Aug. 11/12.



4) The Stepten formation  
fama occurs in  
Lower Pantwai. 2200.

Hota  
~~Summa~~ formation  
Gray siliceous limestone  
weathering buff & gray  
on cliffs 600

Hittka  
Smoky formation.  
Alternating bands of  
gray, thin bedded  
arenaceous limestone  
with argillaceous &  
arenaceous & siliceous  
shales that form  
very striking broken, steep  
cliff shapes.

Extends along valley  
of Smoky river below  
Lake Adolphus east  
of Mt Mumm. 1700  
~~3400.~~



Monte



5) A ? ~~Yamatian~~ On back  
~~Pinkish weathering, gray~~  
~~arenaceous lim.~~ 300.  
~~Light gray lim.~~  
~~Chetang~~

~~B~~ formation.

Bluish gray thin bedded  
limestone forming cliff  
beneath A formation  
broken by a talus slope  
that extends down about  
100 feet to a second cliff.  
A talus slope at the  
foot of this extends to the  
floor of the valley  
down which the  
main S.E. branch of the  
Imakay river comes from  
two glaciers

(b. of section on p. 1)

Strike of beds midway

N. 20° E. (mag). dip 25°

S. 20° W.

900  
1600 feet

Fauna - about 100 from top



Calenman <sup>5</sup>  
~~4444~~ mahito

~~A. to~~ formation.

Massive bedded arena-  
ceous limestones, in  
gaseous bands of (gray  
light & dark) and  
near the top a band  
of gray, pinkish weathering  
limestone that forms  
the south slope of the  
ridge in places.

Estimated thickness <sup>800</sup>  
1500.

9740.

55

---

4200.



found Mineria - etc.  
see (612)

at about 250 feet at  
top of lower cliff  
found Jacanthodes etc  
61k

C. (1) Gray arenaceous  
lms. alternating with  
bands of massive  
quartzite and beds  
of bluish gray limestone  
N. 60° W.  
dip 30°-40°

(3. of whole peak - 900.

Fossils

Obolus canadensis,

agranulos?

occ. near top + at

two horizons 5 to 200 feet  
down.

extend down in the  
section for about 800  
feet and carry Obolus  
massive bedded quartzite  
beds with thin bedded



Bands of purplish-red  
sandy shale occur <sup>in</sup>  
~~near~~ the lower portion  
of these beds near the  
summit of (Photographs)  
Mk?



7) hard sandstones & dirty  
grayish-brown shale in  
thin bands. (This series from  
the south face & slope  
of Photograph Mt. The  
southwest face slope  
of Pass Mt. and plain  
the north east face of  
Pass Mt. for about ~~600~~  
800 feet. St. N. 70° W. dip 30° NW  
Total of C - 2600.  
1800.

D. Green & purple, hard,  
siliceous shales with  
pinkish & greenish  
siliceous, irregular  
massive beds of lime-  
stone interbedded  
in central portion. 800  
600.

McMurrayton -

E. Light gray massive  
bedded quartzitic  
sandstone -  
(Only a few feet exposed)  
Aug. 19<sup>th</sup> 12







Aug 3<sup>d</sup> / 12

Went up N. E. glacier  
of Mt. Robson -

All glaciers of this  
region show retreat  
in past 5 years of  
from 100 to 200 feet both  
from side & terminal  
margins & thickness  
of lower ~~fronts~~  
fronts of glacier.

About same as at  
Glacier, Emerald glacier  
etc on C. P. Ry -



Mt Robson, Aug. 9/12.

A. W. glacier of Mt Robson has broken down from high on the peak a great quantity of rock.

The gray siliceous buff-weathering massive limestone similar to that on the median moraine of Resplendent glacier is the most abundant.

Bands of bluish-gray thin bedded limestone occur between the massive siliceous beds. This occurs abundantly in the moraine. Several different layers carry a small Lingula of an Oriskany type. (C12). A small Bathyrus-like trilobite.



Aug. 19<sup>th</sup>/12.

Loc. 1<sup>mi</sup> S. Moose Pass  
black shale from D.?  
has Palterella in it  
in slope rock. Verify  
this further south  
by rock in situ if  
possible.

The Palterella is  
similar apparently to  
the one in the lime-  
stone of the U. C.  
on the east side  
of the canyon.

Ronald Phillips.



Aug. 25/12

Beltran.

1 1/4 mi. west of Summit of  
Yellowhead Pass - B.C.  
Canada. Cuts on line  
of Grand Trunk Pacific  
Railroad.

1) massive bedded <sup>gray, micaceous</sup> sand-  
stones with partings  
of gray ~~argillaceous~~ <sup>shale</sup> that is cennacitic  
& cleaned in most  
instances.

Some  
of the layers of sand-  
stone are finer than  
others but all suggest  
deposition in muddy  
water.

The strata dip N.W.  
N.W. - 60° to 70°. There  
also were a few  
of contorted places.



Aug. 20, 1912

Box 30 F. 2

RU 2004



Aug. 20<sup>th</sup>/12  
Resting in Camp B.

Mr. Rahsan area.

Mr Rahsan is one of the most impressive of the high mountains of the Canadian Rockies, that is much from its being the highest peak (13000) but because it rises from Lake Helena <sup>on the S.W.</sup> 9000 feet with great cliffs & steep slopes & from Berg Lake <sup>on the north</sup> 7000 feet. To the north-east & east great buttresses of rock with huge snow fields & glaciers lead up to its acutely pyramidal summit that rises 3000 feet clear & sharp against the sky. The slopes of the upper half mile are too steep



to hold masses of snow  
 altho the ~~lines~~ bedding  
 of the dark limestones  
 are finely outlined &  
 long ribbons of ~~not~~ verti-  
 cally ribbed snow  
 hang in the reentrants  
 angles & shallow alcoves.  
 It is the ~~caplain~~ of the  
 series of peaks that  
 extend (far & near) from  
 its commanding presence.  
~~The~~ Berg glacier hangs  
 in a narrow depression  
 between Robson & the dark  
 mass of the Rearguard.  
 Its gathering field of snow  
 is high up beside the  
 Helmet and the narrow  
 broken, crevassed lozique  
 of ice looks as though  
 at any moment it  
 might be precipitated  
 down the steep slope  
 into Berg lake - instead



of flowing gently down  
to the lake, breaking  
off as small bergs and  
sailing quietly away  
over the placid water.

The snows of the east  
face drop down to the  
gathering field between  
the Helmet & the snow  
clad Mt. Resplendent  
and contribute their  
mite to the impressive  
~~Resplendent~~ <sup>Rapson</sup> glacier

~~That~~ <sup>These</sup> cascades down the  
slope of the <sup>canyon</sup> valley  
between the Rearguard  
and Resplendent before  
turning north between  
Rearguard & Ptarmigan  
Mt.

A long gentle  
slope of two miles  
the now peaceful  
river of ice creeps  
nearly down to the level



of the <sup>valley</sup> plain of Berg  
lake.

A third glacier of  
rather modest features  
on the ~~lower~~ north slope  
of Robson & forced  
a high moraine out  
to bar the passage  
of the waters of Berg  
Lake that place part  
as the beginning  
of Grand Forks river.  
~~viewed~~ from the higher peaks  
& ridges (8 to 11000 feet)  
Robson stands out as  
the commanding  
figure of the landscape.  
as the topography of  
the region is such that  
~~for~~ a clear view  
is readily obtained.



The pouring of the  
waters on ~~Beckley~~ <sup>Rabson</sup>  
glacier.

A small stream  
flowing down the  
gentle slope of the  
glacier nearly mid-  
way of its lower  
portion was robbed  
of a portion of its  
water by a ~~the~~ stream  
that was cutting  
back on the slope  
with the result that  
the west branch  
carried the water  
to the stream that  
emptied into Lake  
& thence to the  
Pacific while the  
east branch  
delivered its water  
to the stream that  
flowed towards



Lake Adolphus  
+ thence to the  
Smoky river and  
Hudson Bay. A  
<sup>temporary</sup> continental divide  
on the glacier.  
(See Kodaks.)



Aug. 24/12

Robson appear to be  
formed of ~~middle Cambrian~~  
Massive & shaly lms.  
The great ~~siliceous~~, massive  
bedded siliceous lms of  
the C. P. Ry section and  
(Eldar Cathedral) are  
not well defined if present  
at all.

The cliffs of Robson are  
made up of <sup>pure</sup> gray lms.  
with some magnesian  
lms & intercalated siliceous  
shales. Layers of basaltic &  
interstratified congl - l  
~~layers~~ lms are frequent.

The syncline is between  
Robson & the "Rearguard"  
to the N. E.





R07004 Box 30 F3

Aug. 25, 1912



Yellowhead Pass Aug. 25/12  
 a valley



a - a - Base of Cambrian  
 b. b. Algonkian (Beltian)  
 c. c. Cambrian Sandstones.

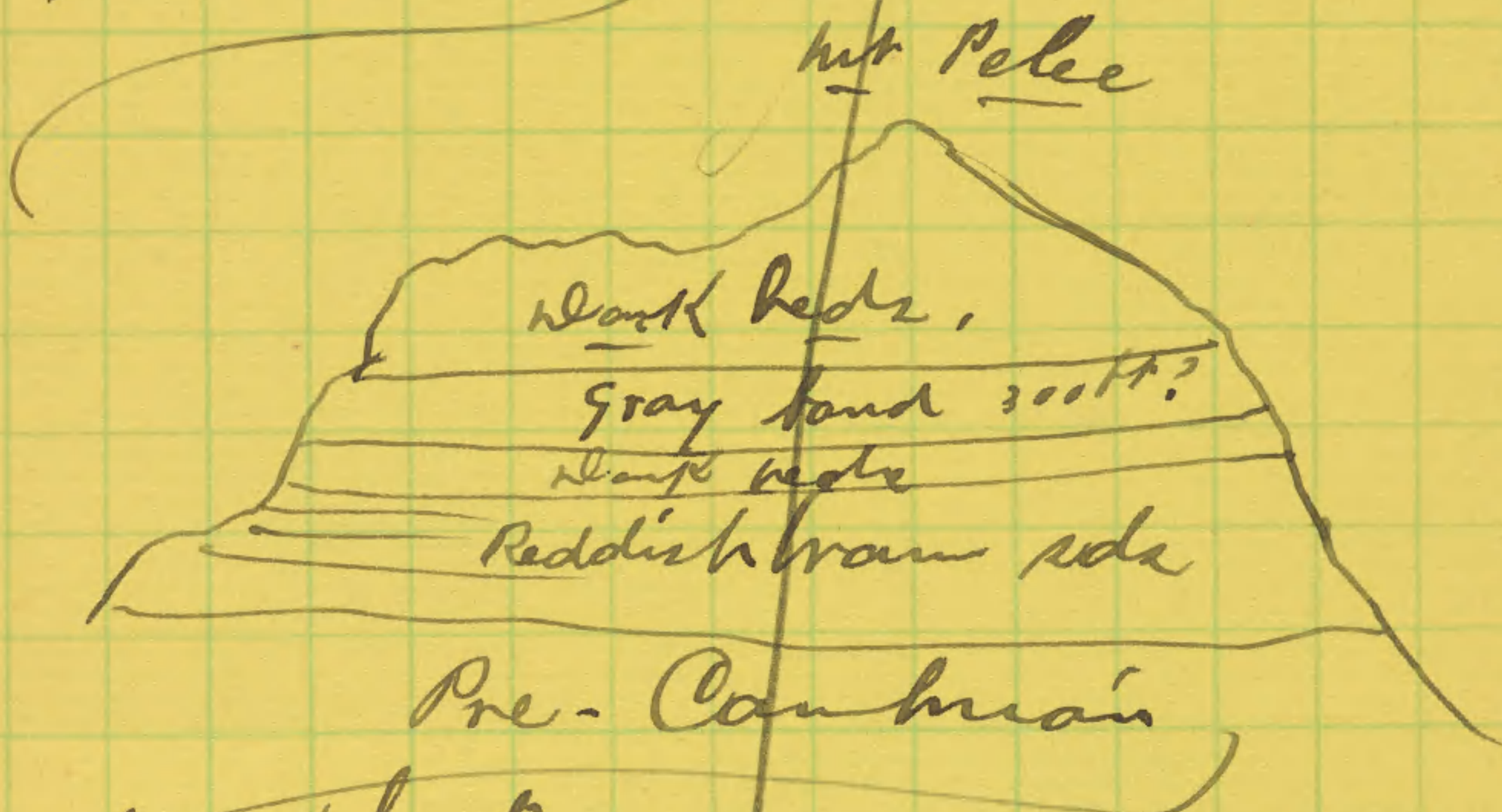
Essentially same type  
 of valley as the Bow  
 River Valley near  
 Laggan on the Can.  
 Pac. Ry.

Aug 26/12

Went on ridge west  
 of Pass & found  
 Algonkian (Beltian)  
 extended at about  
 2500 feet above Pass.  
 Cambrian sandstones  
 rest unconformably



in the Beltrami as  
shown on both  
sides of Pass - See  
photos



See photos -

Limestone, highly siliceous,  
hard - black.  
No fossils seen in the  
dark bands.

Cold, clay clay,



RU7004

Box 30

F3

July 28, 1916



July 28/16  
Section from base  
of Cambrian up on  
Bishah Mt. East of  
Wander Pass. B.C.

1) Fairview Qtz.

Basal congl. in massive  
layers. (8) 45.6'

b) massive bedded grey  
qtz - (85) 480.

a) Strike N. 70° W. (mag)  
Dip 7° to 10° S.

2) Lake Louise shale (12)

Dark siliceous  
shale forming well  
defined band in  
cliffs. 69'

3) a) Piran Quartzite...  
Thin bedded  
massive bedded light.



$$\begin{array}{r} 41 \\ \hline 205 \end{array}$$

$$\begin{array}{r} 392 \\ \hline 32 \end{array}$$

$$49$$

$$245$$

$$32$$

$$277$$

$$\begin{array}{r} 41 \\ 205 \\ 30 \end{array}$$

$$34.$$

$$170$$

$$25$$

$$89$$

$$34$$

$$55$$

$$275$$

$$40$$

13

*[Faint, mostly illegible handwriting]*



gray quartzite, with  
a few partings of  
siliceous shale (49) 280.

(b) massive bedded light  
gray quartzite (41) 235.

mt. Whyte formation -  
1. (a) Hard, <sup>compact</sup> siliceous shale  
dark gray to black  
weathering buff  
included iron (34) 195

2. Hard, siliceous  
greenish shaly  
beds (55) 315

3. Banded green  
siliceous beds in  
massive layers, 235

4. Alternating beds of  
shale similar to 3 and  
with gray siliceous







3  
limestone.

1761

5. Gray, galitic limestone  
in thin beds. 2<sup>in</sup> - 6<sup>in</sup>  
thick -

21 feet

Cathedral limestone

1. Buff weathering  
arenaceous

massive beds 26

2. Bluish <sup>gray</sup> arenaceous  
limestone alternating  
with bands of  
purer limestone  
made up of thin  
layers -

Not named